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Backlogs Higher in Some Grades of Paper

Coated Book and Specialty Papers Less Active As Normal Merchandising Plans Are Discontinued — WPB Holds Large Paper Meeting — Waste Paper Prices Break Again — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 6, 1942—With backlogs still very impressive, the Chicago paper trade entered into the midsummer months more and more convinced that a "defeatist" policy in the minds of paper buyers would have to be overcome before sales could show any genuine improvement. By "defeatist," the paper trade means that frame of mind wherein the buyer has been told of paper shortages and of the need for conservation for so long that he makes no attempt to "try the market". There are many buyers, local executives feel, who would be in the market if they were not convinced by previous publicity that the paper was not available.

Back logs began to get heavier in the sulphite grades during the week, said local commentators, while all advertising papers and specialties in this classification were definitely "hard hit" as merchandising programs went by the wayside. Were it not for widespread publicity on Bonds and Stamps and other related War efforts the use of paper might be even less impressive than it is now. Krafts also reported supplies which would make it unnecessary for users to go into any conservation of Christmas boxes and packing and the wrapping paper industry here continues to explore means of getting buyers into the right frame of mind. Fine papers for business use were only fairly active while groundwoods were likewise feeling the effects of a lack of "buyers mood". Waste papers continued far too plentiful with storage a major problem at this time.

WPB Holds Chicago Paper Conference

Nearly 500 interested, alarmed and perplexed paper trade executives including mill representatives, jobbers, manufacturers and trade association representatives, crowded into the Drake Hotel on Thursday, July 2, to listen to David Winton, chairman of the Pulp and Paper Section of the War Production Board. The meeting, arranged by the WPB as a means of conveying latest information to the industry, also was featured by the appearance of a corps of experts who assisted Mr. Winton. Sessions convened at 11 in the morning and went through to mid-afternoon—all attended by representatives of the industry. Later, it was reported, "star chamber" sessions were held to handle specific questions. While no questions were permitted from the floor, the WPB representatives did read questions prepared in advance and attempted to thoroughly probe the new Priority No. 10—Allocations and Simplifications—which has the trade all "agog" to say the least.

The numerical system for the entire economic or business cycle in which every purchase order has a number permitting WPB to trace the transaction to the "end user" was described in detail by Mr. Winton and his associates and the emphasis on "essentiality" was not overlooked by the members of the industry who were present. In his opening remarks Mr. Winton urged the paper industry to adopt an "all out" philosophy about winning the war. He warned of greater sacrifices to come, indicated that he knew business was bad but said the goal far transcended the immediate problems. He declared that it was up to the paper trade to prove its essential qualities and to show that uses of paper were fundamental in the war effort.

While the Pulp and Paper section representatives undoubtedly did their best to transmit this information, it was obvious, according to observation, that many questions as to the mechanics of the priority program still remain. There likewise remains the huge reserve of paper built up by "over conservation" which plagues the industry every step of the way and which is reflected by various efforts to "stimulate buying in the right way" as one mill representative put it. Conversation of a private nature, at the Drake Hotel meeting, revealed some interest in recent Detroit advertisements of a paper house designed to put the "real facts about paper before the consumer public" and it was rumored that the N.P.T.A. was planning a meeting in New York City next week at which time association executives were to discuss some means of providing full cooperation for the Government while still advising the customer that there was and is plenty of paper of virtually all grades on hand for immediate delivery.

(Continued on page 15)

Employment Declines in Wisconsin Mills

Industrial Commission Reports Slight Drop In Employment In May With Average Weekly Wage of $32.44 — Consolidated Plans Reforestation Project In Oneida County — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 6, 1942—Although production schedules have been reduced by some of the mills in the Fox River Valley, the employment average for all mills in the state still holds quit esteady, many of them still operating at capacity where government orders augment the slower jobber market. The employment report of the Wisconsin Industrial Commission shows a decline from 24,100 workers in April to 24,000 in May, a drop of 0.3%. The average is still 4.3% above May, 1941, when 23,000 were employed.

Estimated weekly payrolls have not declined, however, because of recent wage increases in several mills. The total for May was $780,000 per week, a gain of 3.1% from the April average of $756,000. The peak to which wages have climbed is shown in the comparison with May a year ago, when workers were receiving $664,000 per week, 17.5% below the current weekly total. Average hourly earnings are now 76.7 cents, or $32.44 per week for an average of 42.3 hours.

Nineteen plants in the Milwaukee metropolitan area show a greater decline than the state average. Employment is down 3.0 for May as compared with April, with 2,021 workers now employed. Weekly payrolls have dropped to $60,629, a decline of 3.5%. The hourly rate, at 70.6 cents, is below the state average, and average earnings are $30 per week for 42.5 hours.

Over Supply of Waste Paper

Waste paper salvage campaigns have been so effective that the market is glutted with supplies in the face of a tapering off of production. Numerous jobbers in the Fox River Valley have announced that they will make no further purchases from collectors because their warehouses are full, and they have no further storage space available. Some cities are suspending their collections for the present, but others have decided to continue and hold the stocks until the demand picks up, on the basis of reports from the U. S. office of emergency management and other sources that there will be a greater need by fall.

Consolidated Plans Reforestation Project

Establishment of a 25,000-acre reforestation project in the northern woods area in Oneida County is contemplated by the Consolidated Water Power and Paper Company, Wiscontin Rapids, Wis. The tract is owned by the county, and a bid of $2.75 per acre has been entered by the Consolidated company, on which action will be taken at a special meeting July 25.

The sale would bring Oneida County approximately $70,000, most of it at $2.75 per acre, and a portion at $2.00. The land would then be entered under the state forest crop law and would bring a tax revenue of ten cents per acre annually, plus a severance tax on the merchantable value of timber when cut.

Officials of Consolidated announced that the land would be planted as a private forest similar to one now operated in Forest County and other smaller areas in the northern section. There is a limited amount of pulpwood stumpage ready to be cut, but most of the area will be planted to augment the company's future wood supply.

Paper Replacing Tin and Rubber

The extent to which paper is replacing rubber, tin and plastics for packaging is pointed out by Willard Meyer, divisional sales manager of Milprint, Inc., Milwaukee, Wis., one of the large operators in the printed wrapper field.

The company's 93 packaging engineers have concentrated on the production of substitutes, and have solved many of the problems of firms unable to continue with their former wrappings. Many more innovations are predicted as the materials problem becomes more acute.

Mr. Meyer points out that cheese, formerly wrapped in metallic foil, is now being put into special coated cellophane wrappers, and such processed meats as loaves and sausages are appearing in similar containers instead of the films made from now extremely scarce rubber.

Plasticized paper is also being used to replace metallic foil for such things as candy, buillon cubes, yeast, etc.

In the case of heavy-bodied liquids such as sirup, honey and jams, cellophane bags placed inside of wax impregnated paper boxes or tubes are being used to replace metal containers. Frozen eggs, which formerly came in tin cans, are now packed in like manner, while spices have bid farewell to their former tin homes to move into Appleton cellophane bags.

These transitions will be permanent in many cases, Mr. Meyer believes, because many of the new packages are cheaper, save a huge amount of material and weigh as little as one-third as much as the original.

Forest Products Conference to Meet

Dates of July 24 and 25 have been set for a forest products conference to be held at Hotel Wausau, Wausau, Wis., at which executives of Wisconsin paper mills will be among the 200 expected. The forest cutting practices committee appointed by William J. Aberg, of Madison, Wis., chairman of the Wisconsin Conservation Commission, will give its report and recommendations. The purpose of the meeting will be to adopt a policy whereby mills will purchase their pulpwood only through operators and jobbers who conform to selective cutting methods, and the same will be true of lumber mills.

Nuptials in the Paper Industry

One of the society weddings of the last week was that of James J. Shipman, of Easton, Pa., and Miss

Jane Sensenbrenner, of Neenah, Wis., which took place June 30 in the chapel of St. Margaret Mary Catholic church at Neenah. The bride is the daughter of Mr. and Mrs. J. Leslie Sensenbrenner. Her father is associated with Kimberly-Clark Corporation, and she is also the granddaughter of F. J. Sensenbrenner, chairman of the board of Kimberly-Clark. Mr. Shipman is a graduate of the Massachusetts Institute of Technology, and is employed by Kimberly-Clark at Neenah. A reception was held for more than 300 prominent guests after the ceremony at North Shore Golf Club.

John W. Green, a member of the teaching and research staff of the Institute of Paper Chemistry, Appleton, Wis., and Miss Mary Agnes Sheldon, of Milwaukee, Wis., were married Wednesday, July 1, at Immanuel Presbyterian chapel, Milwaukee. The bride has been employed in the offices of Lawrence College, with which the Institute is affiliated. The couple will reside at Appleton.

OPA Issues Newsprint Differential

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 6, 1942—A price differential above the maximum price fixed for "standard newsprint" is established for "Super Standard" newsprint by Amendment No. 2 to Maximum Price Regulation No. 130 (Standard Newsprint paper) issued today by Price Administrator Leon Henderson. The amount of this differential must not exceed $3.50 per ton, and it cannot be charged or paid unless the paper is to be used for printing by the rotogravure process.

"Super Standard" newsprint has been used in steadily increasing quantities as a replacement for other processed (newsprint) papers, such as "Rotogravure Super" and "Rotogravure E. F." Its price, since its introduction in 1934, has been substantially below that of the latter papers although it has always been sold, because of higher production costs, at prices above standard newsprint.

Canadian manufacturers supply all of the product to American consumers who use it for pictorial, magazine, and book sections and Sunday supplements. Under the provisions of the Maximum Price Regulation No. 130, the price was frozen at that of standard newsprint when, for the purpose of giving OPA time to complete its study of the costs of production and the uses of this quality of paper, it was included in the definition of standard newsprint.

The amendment, effective July 8, 1942, restores the differential which existed prior to the issuance of the regulation. It does not raise the price of any particular quality of paper and reflects the price paid for this grade in October 1-15, 1941. Users of this type of newsprint generally recognize that the price for it should be more than for ordinary newsprint.

OPA studies also showed that the use of standard newsprint as a rotogravure paper would be more costly to gravure printers and eventually to publishers. Standard newsprint when used in rotogravure printing results in blotchy and obscured printing, excessive wear and scratch lines to copper cylinders which supply ink to the paper surface, waste of paper because of frequent breaks in the web of the paper and a greater ink consumption because of the great absorbency and surface roughness.

As defined by the amendment "Super Standard" newsprint paper is "a quality of standard newsprint paper with an average basis weight per shipment of not less than 34 pounds, subject to normal trade variation, which has been specially processed and manufactured in a manner to render it more suitable than ordinary standard newsprint paper for printing by the rotogravure process."

The price differential may be applied only in cases where the manufacturer marks the container or wrapper of the paper in manner which clearly indicates it is sold for rotogravure printing. The act of purchasing will be construed to be a guarantee to OPA that the paper will be used only for rotogravure printing.

The maximum price established by the regulation for standard newsprint is $51 in Zone 4, or $50 port price.

Publicizes Paper Supply Situation

The Central Fibre Products Company, 111 West Washington street, Chicago, Ill., has attached to payroll checks of its employees and sent to its stockholders, the following statement relating to the paper supply situation:

"You have read and been told that there is a shortage of paper—boxes, containers, bags, etc.—all forms and grades. This widespread appeal to save paper was started from the Government's appeal to the public to save waste paper in order to avoid a shortage of the finished paper products.

"Waste paper is now being saved in sufficient quantities to permit mills to run full with a capacity large enough to supply all war and civilian needs, but because some manufacturers, jobbers, and merchants everywhere saw an opportunity to twist the meaning of the Government's appeal and turn it to their own selfish benefits, mills are reduced to part time operation, there is no outlet for the accumulations of waste paper, thousands of men are thrown out of work, breakage of merchandise due to improper packaging is increasing rapidly, and health and sanitation throughout the nation are threatened.

"There is no shortage of paper or paper articles, and a patriotic duty will be filled by insisting upon proper packaging of all purchases. Accept no purchase not properly wrapped and boxed in new materials. Do not accept used, unsanitary, wasteful packaging materials.

"This nation is at war, and two of the most vital elements in winning that war are: (1) Guarding the health of the entire population. (2) Avoiding breakage and waste of critical and valuable merchandise and material. Insist upon proper packaging in new materials."

Stanley W. Oshan Returns

The New York War Savings Staff announced today that Stanley H. Oshan, advertising manager of Oneida Paper Products, Inc., has returned there after three months as a volunteer aide in the Government's War Bond and Stamp sales campaign.

Coming with the Treasury Staff in March Mr. Oshan gave impetus to a number of successful bond promotional activities and he was particularly responsible for the "You Can't Do That Under Hitler" newspaper advertising campaign.

In June Mr. Oshan helped develop the schools by which Minute Men were trained for the New York Pledge Campaign. His talents were also used in the publicity department and in the speakers' division.

Prospect of Canadian Power Shortage Wanes

Threat of Rationing Seems More Remote With Good Rainfalls and Any Restrictive Measures Are Likely To Be Less Severe Than Feared—Work of Forestry Corps Commended—Other Mill News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 6, 1942—The ghost of a possible shortage of power in late summer and fall, which has been haunting the newsprint industry for some time, seems to have been pretty well exorcised. The main feature was that there would be a shortage of water, but as far as Quebec province is concerned, rains have been so abundant that it is now announced that water storage conditions are particularly good, the huge water storage basins at the heads of the principal power rivers being filled to the top.

This does not all together remove the threat of some measure of power rationing, as according to present indications kilowatt hour consumption this coming winter will be the highest on record. But it does mean that whatever measures are taken will be less severe than had been feared.

What will make the power supply situation in central Canada particularly acute will be the coming into production of additional facilities at the Aluminum Co. of Canada plant. Aluminum production requires tremendous amounts of power, and until new power production facilities are completed, next year, the supply situation must continue serious.

From the standpoint of the newsprint industry, the good water storage situation is particularly cheering. There had been fears that some mills might have to close down, at least temporarily. What appears now as a more likely development is that a staggered hour system will be applied to newsprint plants, to bring down the peak load.

Canada's Forestry Corps

News has been received here that splendid work is being done in bolstering Britain's defenses by the Canadian Forestry Corps operating in the United Kingdom under the direction of Brigadier-General J. B. White, D.S.O., vice-president of the Canadian International Paper Company.

A dispatch published here says that from every timber district in Canada men have answered the call of the Forestry Corps for experienced bushmen. With mill equipment purchased in Canada they have transformed the quiet Scottish countryside into roaring, Canadian-style lumber camps. They have established more than a dozen camps and their output is more than 200,000 board feet a day.

Even royal timberland that has been the exclusive property of the King is feeling the blade of Canadian axes and saws. Not one tree will be spared, no matter who its owner, if it aids in the British war effort.

Built around the mills are camps for the men of the Canadian Forestry Corps. They are completely self-contained with their own hospitals, medical, dental, sanitary and food supply facilities.

Mill equipment for the camps has been purchased in Canada and the Forestry Corps is using modern Canadian lumbering methods throughout every camp.

As well as wielding axe and saw the Forestry Corps is a trained fighting unit. Even their lumbering equipment will be used in battle if they are ever called upon to lend a hand in the defense of England's shores.

Every man has had extensive military training and every company of the corps has competent machine gunners. Regular army manoeuvres are held by the corps, and by its work during these manoeuvres the Canadian Forestry Corps has shown itself to be a body of first class fighting men as well as being the finest timber fellers in the world.

Carton Men Hold Outing at Pawtucket

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 6, 1942—With the largest turnout in the history of outings of the Providence Carton Association, nearly 60, guests being present from all over New England, the eighth annual summer gathering of that organization at the Pawtucket Golf Club, Pawtucket, R. I., June 22, was an unqualified success.

Many played golf and many prizes were awarded to winners. A special golfers' luncheon was served at 12 to 2 p. m.. Those who did not play gathered around the club house for social converse and get-togethers.

After a delicious dinner, President Charles K. Shaw presented some of the guests, including President "Al" Bliven, of the New England Association; Vice-President A. M. Bond of the New England Association; "Gus" Wiswall, a past president of the N. E. A.; Howard Scholes, another past-president of the N. E. A.; Secretary John L. Munro, secretary of the Boston Metropolitan Association, and Vice-President Oscar Carnevale, of the Providence Carton Association. President Shaw extended welcome to "Al" McCreery, of the C. & M. Mfg. Co., and Dr. Eliot Clark.

There was a brief business discussion, including priorities, but for the most part the meeting was given over to relaxation.

Wiliam J. McLellan Dead

William J. McLellan, 70, of Pigeon Cove, Rockport, associated for more than 50 years with Carter, Rice & Co., Boston paper merchants, died July 2 at the Newton Hospital, Newton, Mass., after an illness of several months.

He was born in North Sydney, N. S. Prominent in paper circles for many years, and popular with his fellow executives among merchants and mills, Mr. McLellan was given a testimonial dinner by his associates last December at the Harvard C lub of Boston. He leaves his widow, Mrs. Lena M. McLellan, and a daughter, Mrs. Edward Davis of Hopkinton, Mass.

A delegation from the Carter, Rice Company attended the funeral services held July 5 at the Union Congregational Church, Boston, where Mr. McLellan had been treasurer and a deacon for many years.

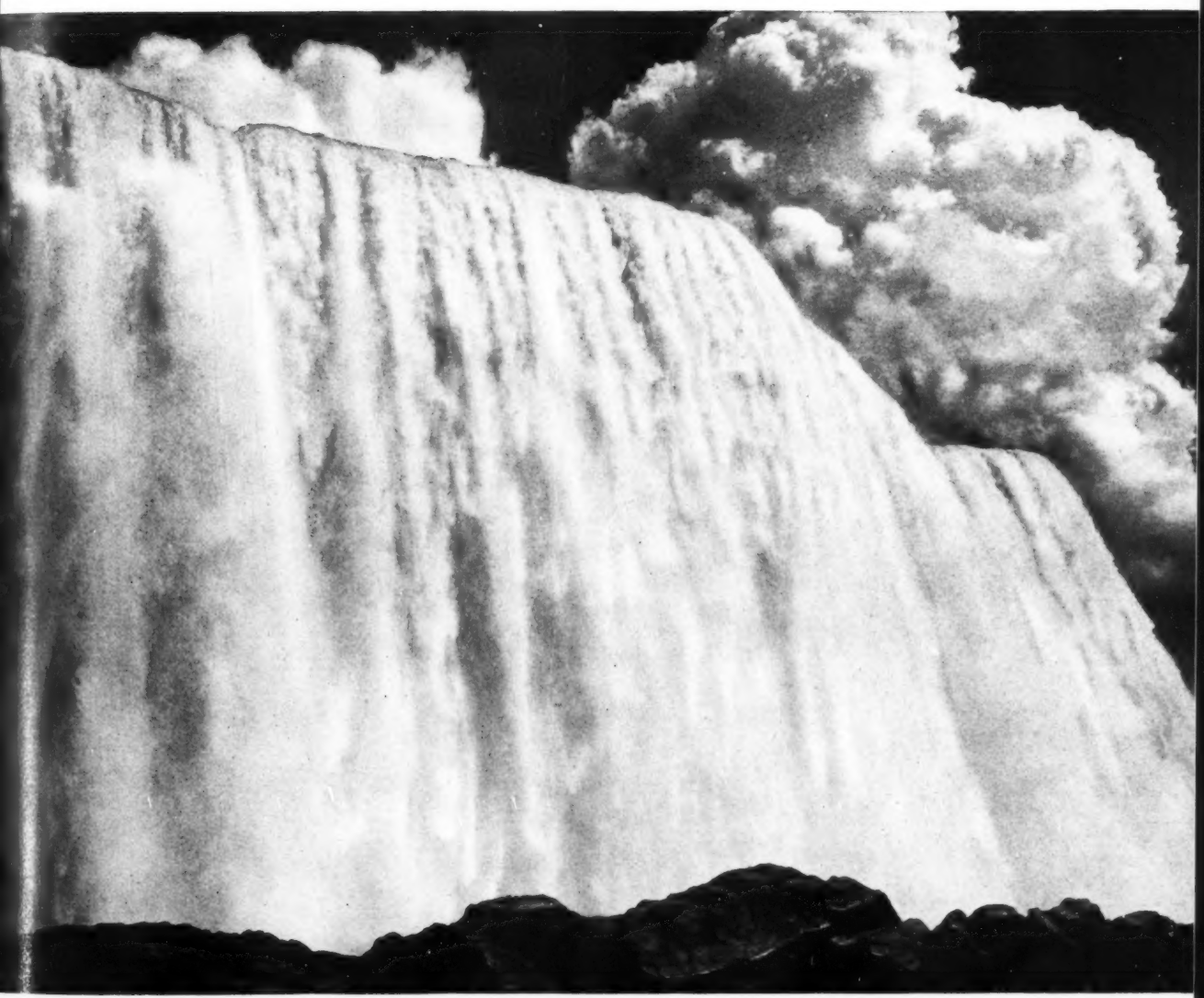
To have ...and TO HOLD

Not for beauty alone is Niagara Falls famous. To people in this country, and in other countries, too, it is an expression of America. In its grandeur they sense the wild, free spirit that has swept this nation on and on with irresistible force. Like the never-ending wheat fields... like the bottomless mines... like the roaring factories and towering cities, it typifies the boundless energy of the U. S. A.

Our youth has found romance and pledged loyalty in the mists of Niagara. Our industry has found power in its cataracts to drive its great dynamos. And the very fact that its power and beauty are shared in peace and friendship with a neighbor country has made it a shrine of good will at which people the world over may take heart. Surely, these great Falls give voice to all that America is fighting for today—the permanent, steadfast, dynamic way of life that can be directed to the good of all but never tamed to slavery.

We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of chemicals for Victory.

CAUSTIC POTASH • CAUSTIC SODA
PARA • CARBONATE OF POTASH
LIQUID CHLORINE



Niagara ALKALI COMPANY
60 EAST 42nd STREET, NEW YORK, N. Y.

Newsprint Tonnage Allocation is Discussed

Canadian Financial Press Considers Possibility of Total Allocation — Industry Operating At 69 Per Cent of Capacity and Prorating Mills Nearer 60 Per Cent — Higher Newsprint Price Unlikely.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 6, 1942—While it is difficult to get a definite statement from anyone in a position to know, the financial press has again been discussing the possibility of the total allocation of tonnage in the newsprint manufacturing industry. It is pointed out that the pressure of new conditions during recent months has brought the question before the industry again and that something may have to be done about it.

On Pro-rating Basis

Commercial newsprint manufacturers in Ontario and Quebec are on a pro-rating basis, but a number of other producers owned or associated with publishing interests are not subject to these conditions. The publishing interests concerned have first call on the production of these mills and take nearly all the newsprint produced by them. The Ontario Paper Company and Quebec North Shore Paper Company are two important companies in this classification. Their mills were erected to supply the needs of their owner-publishers only. Just before the present war began there was an agitation to have these mills made subject to the pro-rating regulations, but with the improved business conditions following the outbreak of hostilities, the agitation gradually grew less and finally disappeared. The industry having gone into reverse again during recent months, the question is again being discussed.

During May the industry's ratio of operations to capacity was only 68% and the ratio for the pro-rating mills was little better than 60%. These figures are very close to the figures for the operating ratio to capacity obtaining before the beginning of the present war. In the meantime, the operating ratio has been as high as 78.9%.

Originally Designed to Equalize Business

Originally the pro-rating plan was designed to equalize business between Ontario and Quebec and affected the majority of mills in the two provinces. It was also calculated to help alleviate social and economic stress in the mill towns and areas and help strengthen the market position of the operators through the elimination of senseless competition. Mills outside the two provinces are not subject to pro-rating but the majority of them subscribe to the principle.

With the receding hope that the newsprint industry will be able to get an increase in price for its product, it would be helpful to the purely commercial mills if the publisher-controlled companies could be brought into agreement with the pro-rating idea. It would at least remove a cause for friction, even if the extra tonnage were not great.

That the hope for a better price is receding is evidenced by the fact that International Paper Company has announced that their present price of $50 a ton "will continue until further notice."

New Literature

Valves for boiler room service are discussed in Bulletin E100, issued by the Everlasting Valve Company, 49 Fisk street, Jersey City, N. J. It describes the construction of the company's quick-operating values for blow-off water columns and other boiler room services.

Metallizing or sprayed metal, is described in Bulletin 42A, issued by the Metallizing Engineering Company, 21-07 41st avenue, Long Island City, N. Y. It briefly covers the application of metallizing in increasing the service of equipment difficult to replace, by building up worn diameters. Examples are given showing how metallized "inserts" and coatings are aiding the conversion of vital defense metals.

Low voltage air circuit breakers, is the subject of Catalogue 2150, issued by the Roller-Smith Co., Bethlehem, Pa. It describes the construction, application and merits of the concern's Type HD equipment. These breakers are available in sizes from 600 to 6,000 amperes a-c, and 600 to 10,000 amperes d-c; in 1 to 4 pole models, for manual or electrical closing. Outline dimensions, closing arc tripper currents are listed.

The Trabon reversing lubricating system is discussed in Bulletin No. 423, issued by the Trabon Engineering Corporation, 1814 East 40th street, Cleveland, Ohio. It describes the concern's single pipe centralized system, which lubricates all the connected bearings without use of springs, diaphragms, packing or exposed moving parts.

Speed recorders are discussed in Catalogue No. N-27, issued by the Leeds & Northrup Co., 4934 Stenton avenue, Philadelphia, Pa. It describes the company's Micromax instruments for measuring and automatically recording the speed of rotating machinery.

"Modern Precision," issued by the Leeds & Northrup Co., is a presentment in news form of items relating to the company's speed recording equipment.

The April issue of the "Agitator," issued by The Noble & Wood Company, Hoosick Falls, N. Y., contains a selection of interesting miscellany and on the back cover, an imposing list of paper mills in which the company's well known propeller agitators are in operation.

Details of design of shafts and housings for ball bearings, is the title of the first of a new series of booklets, issued by the Advertising Department, New Departure Division, General Motors Corporation, Bristol, Conn. It is of particular interest to machine designers in the application of ball bearings.

Boston Paper Stock Market Dull

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 6, 1942—Summer dullness characterizes the paper stock market. There is no slump in prices, however, but when last received they were not up to ceiling.

New Application of the Jordan In Papermaking

By J. H. DeCew[1]

Ever since the invention of the Jordan as a papermaking machine, its use has been confined to that of a refiner supplementing the work done by the beater, for most papermakers recognized that both beating and refining were necessary in the production of quality paper.

Beating consists of the intermittent action of the beater roll knives on the stock as it passes over the bedplate, as well as the blow the stock receives when the beater knife first strikes it. There is also some effect upon the fibers from the friction resulting from the circulation of the stock in the beater. The diluted stock from the beater, in passing continuously through the Jordan, is cut by the shearing action of the Jordan knives to the length required for proper formation in the resulting paper. Beating and Jordaning are therefore terms that are synonymous with beating and refining, both functions being necessary for most grades of paper.

Average Practice

The average practice is to carry out the beating with the stock at a consistency of from 5 to 6%, and the Jordaning at a consistency of 3%. As beating consumes considerable time and as beaters require much floor space, it would be advantageous if the Jordan could be set up to perform the functions of both beating and refining.

Present paper mill conditions do not permit this, but it is possible to build and operate a Jordan in such a manner that it will cease to be primarily a refiner and will produce on the paper stock an effect similar to that ordinarily obtained from the common beater.

In order to accomplish this, the stock must be treated in the Jordan at about the same consistency as it is now treated in the beater. This requires that the Jordan fillings be altered and the power factor so adjusted that the unit force at a given knife section will more nearly approach that found at the point of contact of the beater roll and bedplate. The Jordan will then produce the effect of a rapidly circulating beater, especially if there is a short soaking period between Jordaning operations.

Stock Becomes More Fluid

On passing through a series of Jordans, the stock becomes more fluid with each treatment and thus the refining action tends to increase as the treatment progresses. A Jordan operating at 6% consistency has practically no refining action, so if the consistency of the stock is increased between the Jordaning operations with a resultant constant viscosity, then no refining will take place throughout the treatment, unless the knives are very sharp and an excessive amount of power is used.

However, Jordan fillings can be so designed that the first Jordan will treat a non-fluid stock while the latter ones are adapted to a more fluid condition, the knife construction being adjusted to the viscosity of the pulp.

Existing mills that operate solely with Jordans having no variation in Jordan fillings or stock consistency can only produce one effect upon the pulp, as the only control is the amount of power used by each Jordan.

Can Be Built for Two Functions

Inasmuch as Jordans can now be made to hydrate without cutting, or to cut without hydrating, we must conclude that Jordaning systems can be built to carry out these two functions in any degree required. The type of pulp to be treated and the resulting quality and grade of paper must necessarily influence the design of such a system.

There is no reason why large amounts of power should be consumed in Jordaning operations using them solely for refining purposes. The heat generated and the noise created by such Jordans is direct evidence of the power being wasted in wearing out the knives.

The freeness of the pulp treated by the Jordan can also be controlled by controlling the consistency of the stock. Hydration does not necessarily follow a change in freeness. It may be obtained with very little change in freeness and when this is done a stronger and better folding paper is produced.

There may be some difference of opinion among paper makers as to which machine is the most inefficient, the Beater or the Jordan. However, there is little doubt as to where the greatest improvement can be made with the least effort, cost and in the shortest time.

[1] President Process Engineers, 9 West Prospect Ave., Mount Vernon, N. Y.

Goodrich Men Enter Service

L. H. "Larry" Chenoweth, Manager, Manufacturers' Sales, in the Industrial Products Sales Division of The B. F. Goodrich Company has been granted a leave of absence to serve on the Rubber Products Division of the War Production Board, it is announced by W. S. Richardson, General Manager of the Division. Chenoweth joined B. F. Goodrich in 1914 soon after his graduation from Harvard University, and has held a wide variety of sales posts in the Industrial Products, formerly the Mechanical Goods Division. While he is on leave Chenoweth's duties in the company's Washington Office are being handled by I. N. Kimsey, Akron District Manager.

Robert T. Kain, sales engineer in the belting department Industrial Products sales division of The B. F. Goodrich Company has resigned to enter the service of the United States Navy where he has been commissioned lieutenant, junior grade. Lieutenant Kain, a graduate of the Naval Academy at Annapolis, class of 1921, first entered service during the World War as a midshipman, after his graduation from high school in Hutchinson, Kans.

BACKLOGS HIGHER IN SOME GRADES OF PAPER

(Continued from page 7)

Carriers Conference Held Here

The Illinois Motor Carriers Conference meeting in Chicago this week was well attended by representatives of the transportation departments of local paper jobbing firms. ODT orders 3, 4 and 5 were discussed by district directors of the Motor Carriers Bureau of the ICC and by representatives of the ODT in this area. Most of the time of the conference held at the Traffic Club was given over to a questions and answers period but the executives took time out to discuss a plan of pooling equipment with the clearing houses to be administered by the carriers themselves.

Waste Prices Break Again

Mill prices on waste paper f.o.b. Chicago, declined sharply again this week with the worst decline coming late in the period. The recession from price levels which remained stable during June reflected further weakening of what was reported as a "badly glutted market." The report was issued by the Chicago Waste Material Merchants Association which stated that dealers prices declined in sympathy to a level at which few peddlers can afford to operate. Mill prices on No. 1 mixed paper dropped to $7 from $9 a ton while on No. 1 corrugateed containers the price fell from $12.50 to $10. No. 1 newspaper, on the other hand, remained unchanged from last month at $8. The price per hundred pounds paid by dealers to peddlers declined to 15 from 20 cents on mixed paper and to 30 cents from 40 cents on corrugated containers with the newsprint price remaining unchanged at 20 cents according to the very revealing survey of the association which is reported to accurately reflect conditions on the local market.

Salesmen Plan Special Events

The western division of the Salesmens Association of the Paper Industry is announcing two special events for the month. The first, is the monthly golf outing which will be under the direction of Ray George, and will be held at the sporty Knollwood Country Club near Highland Park, Ill. The date is Friday, July 24 and a big crowd is expected. The second event is an "open meeting" slated for Monday noon, July 13, when Dr. John K. Langum, manager of the research and statistical department of the Federal Reserve Bank of Chicago, will discuss a most intriguing subject—"Deep in the Heart of Taxes." Many guests are expected to hear this careful analysis of the tax burden and of the methods in which the Government intends to handle the huge war expenditures now being used for war materials.

Paper Merchants Prepare to Buck Trend

Chicago retailers are showing interest in preliminary discussions of the Chicago Paper Association concerning efforts to increase the use of wrapping paper and shopping bags. Unusual interest is evident because this effort to increase paper consumption is so contrary to the efforts made in the past to get merchants to secure consumer cooperation in carrying merchandise wrapped in its original containers or not wrapped at all. It is believed that any program of the paper jobbers must receive the sympathetic understanding of the merchants who are, naturally, quite anxious to service their customers to the best extent but are now also interested in the sevings they can make by eliminating some of the "frills" and services which they have adopted over a period of years. Especially are these "frills" costly now as profit margins have narrowed because of the price freezing order. To get merchants back into the "use of more paper" frame of mind is going to be a real selling job for someone.

Johnson Goes to Fletcher Paper Co.

R. C. "Bob" Johnson, long associated with sales work in Chicago, is now located at 201 N. Wells street, as sales representative of the Fletcher Paper Company of Alpena, Michigan.

S. B. Bugge Head Tomahawk Co.

APPLETON, Wis., July 6, 1942—S. B. Bugge became president of the Tomahawk Kraft Paper Company, Tomahawk, Wis., through his election by the board of directors at the annual meeting last week at the Wausau Club, Wausau, Wis. He succeeds A. L. Kreutzer, president since the company's inception, who was elected chairman of the board, a new office Mr. Bugge has been vice-president and general manager for many years, and will continue in the latter capacity.

The vacancy in the vice-presidency was filled by electing D. C. Everest, who is also president of the Marathon Paper Mills Company, Rothschild, Wis. Mr. Everest formerly was secretary-treasurer, an office to which H. L. Fitze, Tomahawk, was elected. J. H. Cowhill of Chicago, sales manager, was elected as vice-president. E. M. Kulas of Tomahawk, was elected assistant secretary-treasurer.

Directors reelected besides Messrs. Cowhill, Kreutzer, Everest, Bugge and Fitze are: Ben Alexander, Chicago, Ill.; F. K. McPherson and C. C. Yawkey, Wausau, Wis., and C. G. McLaren, Tomahawk.

• Kraft Bag Paper Duty Decided

The long pending question of the classification of kraft bag paper has been decided adversely to the position of the Import Committee which held that this material should not be included in the reduced rate granted to kraft wrapping paper.

Although domestic producers could readily identify bag paper as such, as distinct from what is known to the American industry as wrapping paper, the Customs officials have decided that the intent of the Reciprocal Trade Agreement with Finland was to admit such paper as wrapping paper at the reduced rate of 20%, instead of the original rate of 30% provided in the Tariff Act.

The Customs officials originally agreed with the position of the Import Committee, but on reconsideration changed their attitude. The decision will also include kraft envelope paper under the reduced rate for wrapping paper. Under the phraseology of the Reciprocal Trade Agreement Act the domestic industry is denied any recourse to the Customs courts for review of the action of the Customs officials.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending July 4, 1942

STOCKS

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	27	26¾	27
Celotex Corp.	7	6⅞	7
Celotex Corp., pf.	69	69	69
Certain-Teed Products Corp.	1⅞	1⅞	1⅞
Certain-Teed Products Corp., pf.	25⅜	23¼	25⅜
Champion Paper & Fibre Co.	14½	14½	14½
Champion Paper & Fibre Co., pf.	96½	96½	96½
Congoleum Nairn Co.	15⅝	14¾	14¾
Container Corp. of America	12	11½	11½
Continental-Diamond Fibre Co.	6½	6½	6½
Crown-Zellerbach Co.	10⅜	10⅜	10⅜
Crown-Zellerbach Co., pf.	78½	78½	78½
Dixie-Vortex Co.	....	....	....
Dixie-Vortex Co.—A.	33⅞	33⅜	33⅞
Flintkote Co.	87	87	87
Robert Gair	1⅝	1½	1½
Robert Gair, pf.	....	....	....
International Paper Co.	9½	8⅝	9½
International Paper Co., pf.	47½	46½	47½
Johns-Manville Corp.	54⅞	54	54¾
Johns-Manville Corp., pf.	125⅝	125½	125⅝
Kimberly Clark Corp.	....	....	....
MacAndrews & Forbes	16¾	16¾	16¾
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	25½	24¾	24¾
Mead Corp.	6½	6½	6½
Mead Corp., pf.	68½	68	68
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	8¼	8	8
Rayonier, Inc., pf.	24	23⅝	23⅝
Ruberoid Co.	17½	17⅜	17½
Scott Paper Co.	31⅞	31½	31½
Scott Paper Co., pf.	109	109	109
Sutherland Paper Co.	20⅝	20½	20⅝
Union Bag & Paper Corp.	8¾	8¼	8⅜
United Paperboard Co.	....	....	....
U. S. Gypsum Co.	50	47⅞	50
U. S. Gypsum Co., pf.	170	169	169
West Virginia Pulp & Paper Co.	13	13	13

BONDS

Abitibi Pulp & Paper Co. 5s '53	48⅛	48	48
Celotex Corp. 4½s '47	97⅛	97⅛	97⅛
Certain-Teed Products Corp. 5½s '48	87	85⅞	87
Champion Paper & Fibre Co. 4¾s '50	104⅞	104⅞	104⅞
Champion Paper & Fibre Co. 4¾s '50	103¾	103¾	103¾
International Paper Co. 6s '55	105	104¾	105
International Paper Co. 5s '47	104¼	104⅛	104⅛
Mead Corp. 4½s '55	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending July 4, 1942

STOCKS

	High	Low	Last
American Box Board Co.	....	....	....
Brown Co., pf.	....	....	....
Great Northern Paper Co.	29½	29	29
Hummel-Ross Fibre Corp.	3⅛	3	3
National Container Corp.	....	....	....
St. Regis Paper Co.	1½	1⅜	1½
St. Regis Paper Co., pf.	113½	112	113½
Taggart Corp.	2½	2½	2½

BONDS

American Writing Paper Co. 6s '61	82½	82	82½

Abitibi Profits Decline

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 6, 1942—The Abitibi Power and Paper Company reports net earnings in May of $569,749, a decline of $183,109, or 24.32%, from the corresponding month of 1941. This is the second successive month to show a decline from the preceding year and indications are that June will continue this trend. For the first five months of this year, however, net earnings are $756,550 above a year ago, or 24.16%.

These monthly earnings figures are before income taxes, depreciation and interest. The interest is given as $255,249 for May, including interest on overdue interest. Included in May, 1942, earnings is $152,145 received as premium on U. S. funds.

Estimated shipments of newsprint for June are given by G. T. Clarkson, receiver and manager, as 26,000 tons, which would compare with actual shipments of 35,384 tons in June, 1941. This will bring shipments for the first half of 1942 to 207,790 tons, as compared with 198,112 tons for the corresponding period of 1941.

Shipments of bleached sulphite and groundwood pulp for June are estimated at 9,000 tons, against 10,289 tons in May this year and 7,220 tons in June, 1941. For the first half of 1942, pulp shipments will total 60,520 tons, against 40,014 tons in the first half of 1941.

M. & O. Reduces Funded Debt

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 6, 1942—The outstanding funded debt of Minnesota and Ontario Paper Company at May 1, 1942, amounted to $9,566,300, a reduction from $9,757,400 in December 1941, and from the original issue of $12,200,000, according to a report by the trustee to the company's bondholders. During the period from May 1, 1941, to May 1, 1942, the trustee received for credit to the sinking fund, under the indenture securing the first and collateral mortgage five per cent income bonds, cash aggregating $138,749, of which $133,991 was applied in the purchase of $152,600 of the bonds for cancellation. In addition, $2,481,100 principal amount of the bonds was delivered by the company to the trustee to apply on payments required to be made into the sinking fund on May 1, 1941; May 1, 1942, and in future years, and such bonds have been cancelled and retired. As a result, M. & O. had a credit on May 1, 1942, of $289,463 to apply on future payments required to be made to sinking fund.

Bowater's Reports $942,678

Bowater's Newfoundland Pulp and Paper Mills reports for 1941 net income of $942,678, compared with $1,009,847 the year before. Current assets on December 31, last, were $11,298,879 and current liabilities, $3,826,973, compared with $9,936,227 and $2,174,998, respectively, at end of 1940.

F. J. Hill Elected Vice President

The directors of Green Tweed & Co., New York City, manufacturers of Palmetto and other mechanical packings and special tools, announce the election of Frank J. Hill, as vice-president. Mr. Hills has been connected with the company since 1915 and has been its sales manager for many years.

Nekoosa-Edwards Votes Dividend

Nekoosa-Edwards Paper Company, Port Edwards, Wis., has declared a dividend of 1% on capital stock of the company, according to announcement of John E. Alexander, president. It was mailed to stockholders at the close of June.

Government to Control Paper Grades

WASHINGTON, D. C., July 8, 1942—A broad program to conserve the country's paper supply and to assure provision of the volume and kind of paper required by the war program and essential civilian use was announced today by the Director of Industry Operations.

The program is in the form of a series of orders specifying standardization and simplification practices for the paper industry, and was drafted after numerous conferences with industry representatives. It replaces a voluntary plan which was put into effect late last year, and which, according to the Pulp and Paper Branch, has proved ineffective.

Many kinds of paper, including some most familiar to the average citizen—writing paper, envelope paper, book paper, and ordinary tablet paper—are covered by the program, which becomes effective 20 days after the date of issuance, July 4.

Such papers as newsprint, publication stock, wrapping papers, paperboard, and many types of specialty and industrial papers are not affected.

The specifications set forth in the various schedules attached to the order (Limitation Order L-120) are highly technical in nature but are designed to accomplish a simple purpose: paper conservation.

The specifications affect grades, colors, sizes, and weights of the types of papers included in the program. It is expected that considerable savings in labor, power, transportation facilities and repair and maintenance materials can be made under the specifications. In the transportation field, for example, the paper weight restrictions will mean that a greater number of sheets of paper can be made from a ton of pulp and, consequently, more sheets of paper can be loaded in a freight car and fewer cars will be required to meet the country's needs.

Although estimates of savings under the program are difficult to obtain, the Pulp and Paper Branch predicted that its specifications for the types of paper covered by the order will result in savings of approximately 227,000 tons of paper on the basis of 1941 production.

Mills throughout the country will find, under the terms of the order, that they must concentrate on production of paper for essential war and civilian use and eliminate grades and weights that are seldom in demand. Heavier weights in the fine writing paper grades must be eliminated, for example, and it is estimated that this specification will result in an annual saving of approximately 40,000 tons of fibre. Eliminations in other classes will result in comparable savings, but an over-all estimate of yearly savings has not been completed.

In drafting the program, the Pulp and Paper Branch gave special attention to the small job printer. The specifications set forth will permit all printers, both large and small, to obtain the size sheets most suitable for their equipment. Likewise, the specifications were drawn with care not to eliminate any of the grades of paper, sizes, or colors most generally demanded or required by industry or government.

No paper manufacturer is restricted as to the quality of paper he can make. Control is exercised only over the number of grades he can make.

The schedules established under the order may be changed from time to time.

Sonoco

PAPER MILL CORES

For all uses that require an extremely tough, strong, durable product, SONOCO has developed the new RHINO non-returnable paper mill core. Exhaustive tests for breaking and crushing strength and all around toughness indicate its superior qualities.

Returnable Cores
Equipped With
BERMICO Metal Ends

DURO is a standard core of plus-standard quality. Made from our own especially manufactured paper stock. DURO cores are made standard 3⅛" I. D. These cores are equipped with BERMICO open or closed notch, metal ends to fit 3" shaft. TAYLOR Ends that protect inside of core only, can also be specified.

EN-DURO a super-quality core to meet extra demands for strength and service where needed. This is our highest grade core. All cores will take either BERMICO or TAYLOR Ends which can be furnished lacquered in various colors for easy identification... Both DURO and EN-DURO cores have a thick kraft surface cover.

RHINO NON-RETURNABLE

sonoco PAPER CARRIERS

SONOCO MAKES EVERYTHING IN PAPER CARRIERS

SONOCO PRODUCTS COMPANY

BRANTFORD, ONT. · HARTSVILLE, S. C. · MYSTIC, CONN.

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BERMICO (Reg. Trade Mark) ENDS *and* BERMICO (Reg. Trade Mark) FIBRE CORES

Strong cellulose fibres are formed into a homogeneous tube and then especially treated to resist all weather and moisture changes. The Bermico Core is light in weight and extremely hard, strong, rugged. These particular cores have unexceptionally long life in either returnable or mill roll service.

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of this order is not known.—EDITOR.

Minneapolis, Minn.—The Pioneer Paper Stock Company, 620 Oak Lake avenue North, commercial paper products, has approved plans for expansion in storage and distribution department. General erection contract has been awarded to D. J. Kranz, 2900 Thomas avenue North, and work will be placed under way at once. No estimate of cost announced.

West Orange, N. J. — The Roth Paper Box Company, Inc., 6 Dawson street, Newark, N. J., manufacturer of paper boxes and containers, has concluded arrangements for lease of industrial building at 76-78 Ashland avenue, West Orange, and will improve and equip for new plant. It is understood that present plant will be removed to new location, with installation of additional facilities for increased output.

Salem, Ore. — The Oregon Pulp and Paper Company, manufacturer of bond and other writing paper stocks, greaseproof and other special paper stocks, has completed plans for addition, to be used for warehouse service for distribution for rail shipments from mill. General contract for erection has been let to Viesko & Hannaman, Salem, and work on superstructure will begin at early date.

Perth Amboy, N. J.—The Barber Asphalt Company, 1600 Arch street, Philadelphia, Pa., is arranging for the sale of its roofing division mill at Perth Amboy, manufacturer of prepared roofing products, saturated felts, etc., to the Bonafide Mills, Inc., 295 Fifth avenue, New York, N. Y., manufacturer of floor coverings, etc., which proposes to occupy the plant in the future. A consideration of $500,000, it is stated, will be given for the property.

Pensacola, Fla.—The Armstrong Cork Company, manufacturer of insulating board products, has begun erection of new one-story addition to plant, 107 x 260 feet, to be used for storage and distribution, recently referred to in these columns, and will push work to early completion.

Kingsport, Tenn. — The Tennessee-Eastman Corporation, manufacturer of staple fiber, rayon products, etc., has plans maturing for new mill units. Project will comprise several large one and multi-story buildings, equipped for heavy production, and is scheduled to be placed under way at early date.

New York, N. Y.—The R. R. Heywood Company, 263 Ninth avenue, paper products, has arranged for lease of the four-story building at 410 West 26th street, and will occupy entire structure for paper storage service.

Chicago, Ill.—The Central Paper Stock Company, 1265 West North avenue, commercial paper products, has arranged for immediate rebuilding of portion of storage and distributing building, recently damaged by fire. General contract for work has been awarded to H. Kaplan & Co., 751 North Paulina street, Chicago. B. Albert Comm, 20 West Jackson boulevard, Chicago, is architect. The property is owned by the Procter & Gamble Company, 1232 West North avenue, and occupied by the Central Paper Stock Company under long-term lease.

Chicago, Ill.—The American Can Company, Inc., 104 South Michigan avenue, is increasing its production schedules for the manufacture of fiber cans, converting machinery at plant formerly used for the production of tin cans for this purpose. Up to this time, such containers are suitable only for dry products, and are provided with metal tops and bottoms. Company has developed a manufacturing process for producing paper body containers on regular can-making machinery, substituting a sheet of paper board for the metal sheet previously used.

Fiber Pipe for Oil Well Service

According to Dr. M. M. Leighton, Illinois Geological Survey, Urbana, Ill., pipe formed of molded wood fiber has been used with decided success in place of steel pipe in an oil-drilling operation of the Dinsmoor Oil Company, operating in the oil field area in Southern part of the State. This operation was carried out in a 460-ft. drill hole in 12 hours; steel pipe was used only for the top and bottom lengths of the casing. The pipe used was made of molded wood fiber and pitch, with self-sealing joints. Frederick Squires, Champaign, Ill., petroleum engineer for the Survey, is the originator of the pipe and process, and states that the application is practical in any oil field where the well is being driven to one stratum; further experiments are required to determine if a method can be devised to prevent the crushing of the fiber pipe when it is required to penetrate one or more sands. It is said that the self-sealed joints' of such pipe permit faster casing operations than with steel pipe, as the pipe is sealed by a few taps of a drop hammer, while steel sections are screwed together.

Max A. Finkel Dead

Max A. Finkel, aged 70, senior partner of the Finkel Paper Company, 109 Hewes street, Brooklyn, N. Y., died Thursday, July 2.

Mr. Finkel was active in the operation of the company until a few days prior to his death. He started in business in 1901 in Brooklyn and had been active in the activities of the National Paper Trade Association during his long period in the paper business.

George R. Magee in Army

The Marty Paper Company, 41 Park Row, New York, announces that George R. Magee, director of sales in the publisher's division of the Marty Paper Company, has entered the Armed Forces as a lieutenant in the United States Army.

Frank A. Marty will make every effort to maintain and serve his accounts and friends for the duration.

Warfare Gas Hazards

"Warfare gases merit your respect; but your fear is unjustified." This is the opinion of a man whose entire professional life for the past 17 years has been spent in public health work and in chemical safety promotion.

L. L. Hedgepeth, Manager of Technical Service for the Pennsylvania Salt Manufacturing Company, chemicals, is the author of the above statement in a study entitled "Warfare Chemical Hazards." It is a reprint of an informal lecture given by the author before air raid wardens in Delaware County, Pa.

Mr. Hedgepeth discusses gas warfare from the standpoint of civilian defense protective measures. The effects of gas are discussed and the article also names the principal war gases, describes their characteristics and suggests first aid treatment for victims. The study voices a note of reassurance, giving the civilian a calm, non-technical understanding of what actually is involved in gas warfare.

The study appears as a supplement of "The Laundry Bundle" published by the company for May, 1942. A limited supply of reprints is available for interested persons.

Demand Less Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 6, 1942—As war restrictions become more severe, paper consumption on the part of the civilian population in this area is decreasing, according to jobbers. The general situation among the manufacturers is not so bad, for defense industries, with which this section is thickly studded, are active buyers of all sorts of stock.

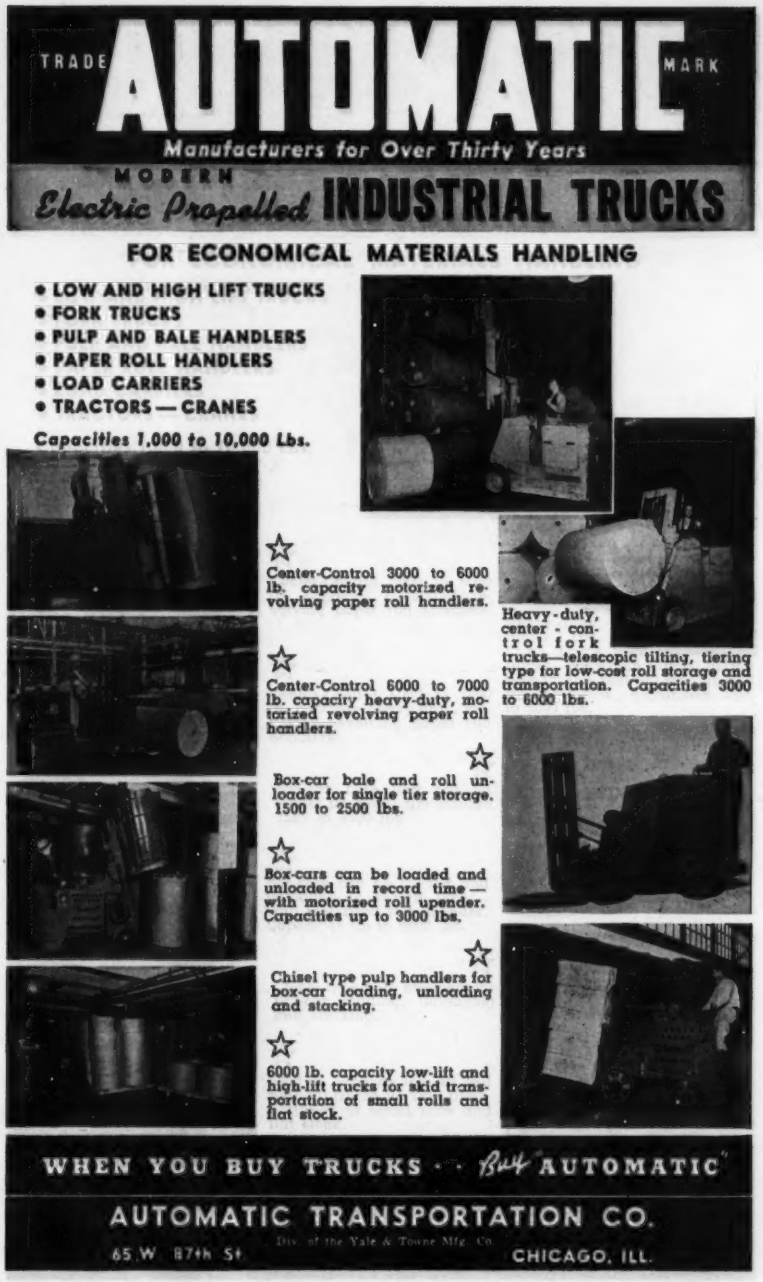
The big disappointment of the year is the decline in demand for building paper and roofing. Restrictions in certain classes of residence construction have curtailed the volume and the local building commissioner estimates that building permits will be only about 40 per cent of those issued last year on a volume basis. At present there is a big campaign under way to force more remodeling and repairing and it may be that this will get under way in sufficient volume to take up some of the slack caused by decline of new construction.

Demand for summer specialties also has shown the effect of war orders. Due to tire troubles, there has not been the number of picnic parties and week-end trips to state parks and lake resorts there always has been and the specialty field has suffered. Volume the first quarter was good, but the second quarter found dealers with large inventories on hand which had not moved. Tissues continued active last week with prices firm.

The fine paper demand has declined somewhat from the first of the year. Prices, however, are holding firm.

Demand for paper containers, both plain and waxed, is fair. The ice cream and dairy industry has been a consistent buyer of both grades and restrictions in deliveries appear to have had no appreciable effect on demand as yet.

A fair demand was reported this week for better grades of rags. In spite of the local building situation, roofing manufacturers were buying rags for their purposes actively and paying maximum prices. In the waste paper field, the situation was reversed. Demand for all grades of waste paper was slow and large stocks are on hand in local warehouses.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• FORK TRUCKS
• PULP AND BALE HANDLERS
• PAPER ROLL HANDLERS
• LOAD CARRIERS
• TRACTORS — CRANES
Capacities 1,000 to 10,000 Lbs.
Center-Control 3000 to 6000 lb. capacity motorized revolving paper roll handlers.
Center-Control 6000 to 7000 lb. capacity heavy-duty, motorized revolving paper roll handlers.
Box-car bale and roll unloader for single tier storage. 1500 to 2500 lbs.
Box-cars can be loaded and unloaded in record time — with motorized roll upender. Capacities up to 3000 lbs.
Chisel type pulp handlers for box-car loading, unloading and stacking.
6000 lb. capacity low-lift and high-lift trucks for skid transportation of small rolls and flat stock.
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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 115 July 9, 1942 No. 2

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Technical Association of the Pulp and Paper Industry, Fall Meeting, Statler Hotel, Boston, Mass., September 30-October 1.

EXPANDING WAR PROGRAM

It is not surprising that confusion, dislocation and uncertainty prevails, not only in the minds of business men but in a perplexed public. Much of the current confusion may be attributed to the price control and rationing measures adopted. It is unfortunate that the drastic curtailment of activity not essential to the war effort is incomplete and so widely accompanied by threats. A more enlightened and characteristic American public relations policy is required to regain waning confidence and secure a clearer understanding of the necessary regulatory measures for winning the war.

Public morale is best maintained and public confidence best secured by as much official frankness as is compatible with the real demands of military secrecy, states the Guaranty Trust Company of New York in discussing the first half year of our direct participation in the war, the current issue of *The Guaranty Survey*, published June 29. "The rather drastic restrictions on civilian life that have been necessitated by material shortages and transportation difficulties have been accepted in most cases with a spirit that promises well for the even more sweeping readjustments that appear inevitable", *The Survey* continues. "Where resistance has been encountered, it seems to have arisen from failure to recognize the need for the regulations in question; a failure that is traceable in some instances to conflicting statements by officials or to an exaggerated reticence on their part in placing the facts before the public."

In commenting on the expansion of the war program the article points out that, "The outstanding result of our entry into the war as an active belligerent has been an enormous expansion and acceleration of the nation's whole military program, with all that this has entailed in terms of money costs, industrial disruption, price disturbance and extension of Government control over economic life. While the process of conversion from a peace to a war basis is still far from complete, the remarkable speed and smoothness with which the first part of the task has been accomplished suggests that American industry is doing all that human ingenuity and determination can do to throw its full strength into the struggle for survival. The main problem now confronting us is that of establishing and maintaining the flow of war supplies that industry has shown itself capable of producing. Transportation is as essential to victory as production itself. If this critical task is carried through with the same energy, determination and skill that has been shown in the 'battle of production', we may face the outcome with confidence".

In commenting on the conversion of industry *The Survey* explains that, "No less startling than the increase in actual and authorized war expenditures has been the conversion of our industrial system to war purposes. Within a few weeks after our transition to a belligerent status, plans have been made for the total suspension of automobile manufacture, except for war and essential civilian needs and the conversion of the entire industry to war production. Recent estimates indicate that about two-thirds of the equipment of the industry has already been adapted to the production of armaments, with some further capacity scheduled for conversion in the near future. Similar action has subsequently been taken with respect to one industry after another until it now appears that within a short time the manufacture of most types of durable consumers' goods will virtually cease for the duration of the war."

Commenting on the outlook for price control the article says in part that, "When it became evident that the measures taken up at that time were not sufficient to assure the requisite degree of price stability, the system of individual price ceilings was supplemented by a general order fixing maximum limits for most wholesale and retail prices at the levels prevailing in March. This step has been followed by another halt in the upward price movement, but it is still too early to conclude that the greater stability will be permanent. Several broad groups of commodities are exempt from the provisions of the order, the most important consisting of farm products, for which, under the law, no limits can be fixed until they attain levels reflecting substantial premiums over parity. Nor does the regulation apply to wages of any kind. Some of the most important categories of prices and costs are thus free to rise further; and, to the extent that they do so, they cannot fail to exert a powerful upward pressure on other prices. It is not logical to attempt to control

price levels unless all the essential factors, including wages and farm prices, are controlled."

In discussing the improved labor situation *The Survey* says in part that, "Under such conditions as exist at present, the forty-hour week apparently amounts to little more than a legal requirement that employers pay one and one-half times the regular wage rates for hours worked in excess of forty; a requirement that obviously imposes a heavy sacrifice on employers who comply with Government's urgent request that production facilities be worked at maximum speed."

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 8, 1942—The Government Printing Office has received the following bids for 150,000 pounds of white sulphite writing paper in 24 inch rolls: Marathon Paper Mills, 6.22 cents; Walker Goulard Plehn Company, 4.98 cents; Mathers-Lamm Paper Company, 7 cents; Parker Young Company, 6.272 cents; Central Ohio Paper Company, 5.29 cents; Wilcox Walker Furlong Paper Company, 5.99 cents; R. P. Andrews Paper Company, 5.36 cents; Birmingham & Prosser Company, 5.35 cents; Stanford Paper Company, 5.88 cents; Butler Company, 5.28 cents; Coy Hunt & Company, 5.41 cents; Mudge Paper Company, 5.41 cents; Marquette Paper Company, 5.06 cents; Barton Duer & Koch Paper Company, 5.02 cents; Paper Corp. of U. S., 5.35 cents; Whitaker Paper Company, 5.36 cents; Mead Sales Company, 6.22 cents; Eastern Corporation, 5.85 cents; and Perkins-Goodwin Company, 4.979 cents.

For 36,000 pounds of 28 x 38 tan bristol cover paper: Marquette Paper Company, 10.42 cents; Barton, Duer & Koch Paper Company, 9.6 cents; R. P. Andrews Paper Company, 10.35 cents (Washington), and 10.67 cents (Chicago); Bradner Smith & Company, 9 cents; Whitaker Paper Company, 9.97 cents; Walker Goulard Plehn Company, 9.875 cents; Paper Corp. of U. S., 10.25 cents; and Hollingsworth & Whitney Company, 6 cents.

Same prices as above for 72,000 pounds of 24 x 36 same.

Freight Rates from Oswego

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., July 6, 1942—A hearing last week before the Interstate Commerce Commission revealed that freight rates on newsprint from this city to New York return the Ontario & Western Railroad $1,468 for a forty-car train. The commission, after permitting the rate to become effective on May 10, refused to suspend the tariff filed by the road but ordered a hearing to determine claims that the newsprint movement is uneconomic. The trustee of the railroad company told the hearing that the rates in question would result in a gross revenue of about $35 a car against an average for the road for all freight of about $28 a car. The railroad official also pointed out that the newsprint movement, which began from the newly developed port here in May, will increase the use of those facilities and the entire road. The newsprint comes from Canadian mills and moves by boats to the Lake Ontario port.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1942		Corresponding Weeks—1941	
May 23	94.0	May 24	100.2
May 30	92.3	May 31	96.8
June 6	89.7	June 7	96.8
June 13	88.2	June 14	99.0
June 20	86.9	June 21	99.9
June 27 (Prelim.)	*84.9*	June 28	101.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1941	85.6	89.7	92.2	96.0	98.7	99.3	94.2
1942	104.5	103.4	102.7	100.3	95.5	*87.2*	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1941	101.0	99.7	105.2	106.2	100.4	97.4
1942	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941	1942
Year to Date..	68.6	78.2	89.1	67.4	79.5	87.0	93.5	*99.0*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	97.8	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	93	*82*	..	..	..	..	..	..	..	..

Week ending May 23, 1942—81
Week ending May 30, 1942—77
Week ending June 6, 1942—69
Week ending June 13, 1942—72
Week ending June 20, 1942—69
Week ending June 27, 1942—72

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Sonoco Files with SEC

The Sonoco Products Company, Hartsville, S. C., has filed a registration statement covering the issuance of $1,000,000 in serial debentures, maturing serially in amounts of $30,000 on July 1, 1943, and on the first day of July thereafter, until and including July 1, 1966. The remaining $280,000 is to mature on July 1, 1967.

The company manufactures and sells paper board, tissue paper, paper bobbins and other textile specialties, as well as impregnated and special tubes for the electrical and allied lines. Net proceeds from the proposed issue. to the extent of $671,820, is to provide additional working capital and pay off a temporary bank loan of $150,000. Approximately $295,000 will be used for retiring outstanding 5 per cent cumulative, preferred stock.

Four South Carolina firms were listed as underwriters each in the amount of $250,000. They were G. H. Crawford Co., Inc., Columbia; R. S. Dickson & Co., Inc., Charlotte; McAllister, Smith & Pate, Inc., Greenville; and A. W. Law & Co., Spartanburg.

Issues Wood Pulp Statistics

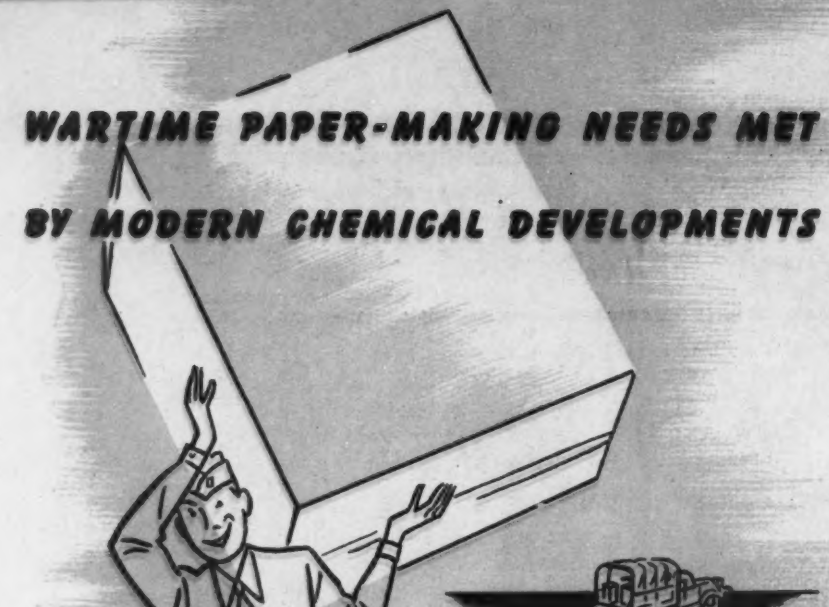
The United States Pulp Producers Association, Oliver M. Porter, executive director, 122 East 42nd street, New York, has just issued the 1942 edition of "Wood Pulp Statistics."

This authoritative compilation from original sources, contains all of the currently available data on the subject.

It includes ten-year data on United States and Canadian production, consumption, imports and exports of wood pulp.

Copies of the booklet may be obtained from the association, at $2 a copy.

WARTIME PAPER-MAKING NEEDS MET BY MODERN CHEMICAL DEVELOPMENTS



WAR BRINGS NEW DEMANDS. Never before has so much been demanded of paper. The requirements of paper making for normal uses have not only become more difficult to meet, but paper is also expected now to step in and replace other materials such as metals, wood, glass, and fabrics.

American paper manufacturers had already made considerable progress along these lines before the influence of the war became a factor. But now the present emergency has intensified and diversified the demand tremendously. As a result, paper and paper boards are being successfully adapted to uses that would have been considered by many as being practically impossible only a few years ago. To illustrate . . .

Machinery, food products, clothing, munitions, medical supplies, and hundreds of miscellaneous light and he weight, durable, fragile, and perisha articles are being packed and shipp to our armed forces in every quarte the globe in packaging materials ma in many cases entirely of paper a paper board. These protective co ings have got to be good to withsta punishing handling and the effect sun, wind, hail, rain, snow, cold, he and humidity.

PROGRESS BEING MADE. To give paper a paper board the properties that w make them stand up calls for a numb of special paper manufacturing tre ments, some of which are new to ma paper makers. For years prior to t entry of the United States into the co flict, Cyanamid had been working su cessfully on many developments i paper chemicals and their uses broadening the fields of paper appl cations. Much of this is now proving vital importance in releasing critical needed materials for the war effort. lot has been done, a great deal mo is under way, and Cyanamid may b able to help you in your efforts to mak paper do its full share in the winnin of the war. A Cyanamid representati will be glad to discuss the matter wit you, and arrange to give you all po sible assistance.

Rigid, damage- and water-resistant cartons of specially sized paper board made to U. S. Government specifications are now used for storage and shipment of munitions supplies.

"Food will win the war and write the peace that follows." The job of the Quartermaster Corps in getting foodstuffs to the armed forces has been considerably alleviated by the many types of efficient cartoning materials developed to keep perishables in good condition.

Paper board sidings now keep out the cold and otherwise effectively insulate both temporary and permanent shelters for soldiers and workers in war industries.

American Cyanamid & Chemical Corporation

A Unit of American Cyanamid Company

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DISTRICT OFFICES: Boston, Massachusetts; Philadelphia, Pa.; Baltimore, Maryland; Charlotte, North Carolina; Cleveland, Ohio; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Missouri; Azusa, California

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AEROSOL* WETTING AGENTS and
OTHER PAPER CHEMICALS

*Reg. U. S. Pat. Off.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Fiber Composition of Paper*

Revision of TAPPI Standard T 401 m-39

This method covers the identification of the types of fibers present in a sample of paper and their quantitative estimation. For accurate results considerable training and experience are necessary. The analyst should make frequent use of standard samples of known composition or of authentic fiber samples and should become thoroughly familiar with the characteristics of the different fibers and their behavior when treated with the various stains.

Apparatus and Materials

1. *Microscope:* A compound microscope equipped with a mechanical stage, a 16-mm. achromatic objective, a 10X Huygenian eyepiece and an Abbé condenser. This gives the recommended magnification of 100 diameters. If an apochromatic objective is used, it is necessary to have a compensating eyepiece and an achromatic condenser.

The eyepiece, Huygenian or compensating, shall be equipped with cross hairs or a pointer. Such can be supplied by the manufacturers of optical equipment or may be prepared by the technician, provided care is taken to place the pointer in position at the field diaphragm in the eyepiece so as to obtain its image in proper focus.

2. *Slides and Cover Glasses:* Standard slides (1 inch by 3 inches) of clear colorless glass and No. 2 cover glasses (1 inch square).

3. *Dropper:* A glass tube about 10 cm. long and 6 mm. internal diameter, fitted at one end with a rubber bulb and with the other end carefully smoothed but not constricted, and graduated so as to deliver 0.5 cc.

4. *Warm Plate:* The plate shall have a plane level top, about 4 inches by 10 inches. The top should be made of solid metal having a black mat finish, provided with a control to keep the temperature of the surface between 50 and 60 deg. C. *(1).*

5. *Dissecting Needles:* Two, preferably of platinum or iridium.

6. *Rule:* Six inches long, one inch wide; preferably of wood and provided with a metal edge.

7. *Aluminum Stearate Solution: (a)* To 600 cc. of distilled water add 15 grams of Ivory soap shavings and stir until the soap is completely dissolved. To the solution, add 10 grams of C.P. aluminum sulphate, $Al_2(SO_4)_3.18H_2O$. A white precipitate of aluminum stearate immediately forms. Stir with a glass rod until the precipitate coagulates into a wax-like mass. With the stirring rod, lift out the precipitated aluminum stearate and place in a desiccator for 48 hours. Store in a well stoppered bottle to be used as needed.

(b) To 50 cc. of benzene in a glass-stoppered bottle add 0.7 gram of desiccated aluminum stearate. Shake well each day until completely dissolved. This usually requires about 10 days. The solution is then ready to use.

Note: If after several weeks it should be found that the solution has lost some of its capacity as a water repellent, add a small piece of aluminum stearate to the solution. This will correct the condition within a few hours *(1).*

Test Specimen

The test specimen shall consist, when possible, of pieces of paper having a total area of 25 sq. cm. (4 sq. in.) cut from different portions of the test sample so as to be representative of it. If sufficient paper is not available, an area of 3 sq. cm. (½ sq. in.) will be recognized for quantitative analysis and 0.9 sq. cm. (⅛ sq. in.) for a qualitative determination.

Disintegration of Sample

1. Ordinary Papers

Tear the sample into small pieces, place in a small beaker, cover with 1% NaOH solution, bring to a boil on a hot plate, decant the alkaline solution and wash twice with distilled water. Cover with 0.05 *N* HCl, let stand several minutes, decant the acid, and wash several times with distilled water. Drain off the water, roll the pieces of paper into small pellets gently between the thumb and fingers, put into a 500-cc. Erlenmeyer flask, add a little water, barely enough to cover the pellets when the flask is tilted, and shake vigorously until the water is thoroughly absorbed by the paper. Add a little more water and shake; and continue in this manner until the paper has been thoroughly disintegrated. Dilute the suspension by pouring away part of it and adding water to the remainder until the suspension has a consistency of about 0.05%. Partially fill a test tube with the mixture *(1).*

Note: For pulp, waterleaf, and moderately sized sheets the 1% NaOH is unnecessary; and for roofing paper and other papers containing wool fibers it must not be used.

2. Specially Treated Papers

Standardized methods cannot be specified for the disintegration of papers containing tar and asphalt, rubber, viscose, etc., or parchment papers, because the

* Criticisms of this method are earnestly requested and should be sent promptly to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 East 42d Street, New York, N. Y.

procedure requires to be varied according to the material, the amount present and the nature of the treatment. The following methods may be considered as guides:

(a) Tar and asphalt-treated papers. Place the sample in a dish, cover with heavy coal tar oil and digest on a steam bath for one hour. After this, remove and press the sample between blotters; then treat it again on the steam bath, but this time with medium heavy coal tar oil, and again press between blotters. Extract with benzene until the distillate is clear. No NaOH should be used in the final disintegration of these papers, because of the possible presence of wool fibers *(3)*.

(b) Rubber-treated papers. Extract the paper for 6 hours in a Soxhlet extractor with cumene (isopropyl benzene), dry and then boil in water to which a little wetting agent has been added.[1] In very rare cases, a 1% NaOH solution may be necessary. With most samples, the cumene will take out about 98% of the rubber *(2)*.

(c) Pyroxylin-treated papers. Extract or remove the pyroxylin with cellosolve (ethyleneglycol monoethyl ether), ethyl acetate, or amyl acetate *(2)*.

(d) Parchment papers.

Method 1. To 25 cc. of water add 25 cc. of conc. H_2SO_4 and cool to 50-60 deg. C. Put the paper into the acid and, when the paper begins to disintegrate, stir quickly and empty into a 1-liter beaker two-thirds full of distilled water *(4)*.

Method 2. Soak the sample for about 5 minutes in conc. HCl, wash, boil up in 0.5% NaOH solution, and repeat this sequence if necessary. Then wash, acidify with dilute HCl, again wash, and then boil in a little water and Tergitol and disintegrate *(4)*.

3. Dye and Color Removers

(a) By oxidation: Use nitric acid or bleach liquor.

(b) By solution: Use alcohol, ammonia, acetic acid, or hydrochloric acid.

(c) By reduction: Use hydrosulphite, stannous chloride, or hydrochloric acid with metallic zinc *(3)*.

Note: These treatments should be used with judgment and some knowledge of the characteristics of the dyes.

Preparation of Slides

The slides and cover glasses normally should be kept in 50% alcohol. After the slides have been dried and polished, proceed in the following manner: Arrange six or fewer slides so that the long edges are adjacent to each other. Place the 6-inch wooden rule on the slides, so that the rear edge of the rule is even with their ends. Dip an ordinary clean steel pen in the aluminum stearate solution and allow the excess to flow off by touching the point against the edge of the bottle. Draw a continuous line on the slides along the metal edge of the rule, making a thin line of aluminum stearate across each slide one inch from the end. Draw a similar line along the opposite ends of the slides. It is advisable to wipe the pen point clean after each set of markings. The aluminum stearate lines will keep the fiber suspension inside the 1-inch square areas at each end. Remove any dust or lint from the slides with a small camel's hair brush.

Place the slides on the warm plate, the surface of which must be *level*. Thoroughly mix the suspension of the sample in the test tube, insert the end of the dropper to the middle of the liquid, and withdraw a portion of the mixture. Immediately place 0.5 cc. of this suspension on one end of a slide. The test tube must be shaken and an individual sample withdrawn for each end of every slide.

After a portion of the water is evaporated, carefully tap the suspension with a dissecting needle to distribute the fibers evenly inside the end areas of each slide. Leave the slides on the warm plate until completely dry *(1)*.

Stains

The "C" stain shall be used for general fiber identification, and if desired, the Herzberg stain for differentiating between groundwood, chemical pulp and rag. The Bright stain shall be used for determining the degree of cooking, and the Lofton-Merritt stain for determining the purity or degree of delignification of the pulp fibers.

Note: The solutions used for preparing the iodine stains should be the exact specific gravity specified and accurately measured with graduated pipettes. Dark-colored glass-stoppered dropping bottles, preferably wrapped with black paper, should be used for containing the stains. The stains should be freshly made at least every two months.

1. "C" Stain *(1, 8)*.

Prepare the following solutions:

A. Aluminum chloride solution of 1.15 sp. gr. at 28 deg. C., made by adding 40 grams of c.p. $AlCl_3.6H_2O$ to 100 cc. of distilled water.

B. Calcium chloride solution of 1.36 sp. gr. at 28 deg. C., made by adding about 100 grams of c.p. $CaCl_2$ to 150 cc. of distilled water.

C. Zinc chloride solution of 1.80 sp. gr. at 28 deg. C., made by adding approximately 25 cc. of distilled water to 50 grams of dry $ZnCl_2$ (fused c.p. sticks in sealed bottles, or c.p. crystals).

D. Iodide-iodine solution, made by dissolving 0.90 gram of dry c.p. KI and 0.65 gram of dry c.p. iodine in 50 cc. of distilled water. Dissolve the KI and iodine by first thoroughly intermixing and crushing together, then add the required amount of water drop by drop with constant stirring.

Mix well together, 20 cc. of Solution *A*, 10 cc. of Solution *B*, and 10 cc. of Solution C; add 12.5 cc. of Solution *D* and again mix well. Pour into a tall, narrow vessel and place in the dark. After 12 to 24 hours, when the precipitate has settled, pipette off the clear portion of the solution into a dark bottle and add a leaf of iodine. Keep in the dark when not in use.

2. Herzberg Stain *(3)*

Prepare the following solutions:

A. Zinc chloride solution of 1.80 sp. gr. at 28 deg. C., made by adding approximately 25 cc. of distilled water to 50 grams of dry $ZnCl_2$ (fused c.p. sticks in sealed bottles, or c.p. crystals).

B. To 12.5 cc. of distilled water add 5.25 grams of dry c.p. KI and 0.25 gram of dry c.p. iodine.

To 25 cc. of Solution *A*, add 12.5 cc. of Solution *B* and mix well. Pour into a tall, narrow vessel and place in the dark. After 12 to 24 hours, when the precipitate has settled, pipette off the clear portion of the solution into a dark bottle and add a leaf of iodine. Keep in the dark when not in use.

3. Bright Stain *(6)*

Prepare the following solutions:

A. 2.70 grams of c.p. ferric chloride, $FeCl_3.6H_2O$, in 100 cc. of distilled water.

[1] Tergitol is satisfactory for this purpose. It may be obtained from Carbide and Carbon Chemicals Corporation, 30 East 42nd St., New York, N. Y.

B. 3.29 grams of C.P. potassium ferricyanide, $K_3Fe(CN)_6$, in 100 cc. of distilled water.

C. 0.50 gram of benzopurpurine 4B, crude, in 100 cc. of 50% ethyl alcohol. The dye used shall be du Pont Purpurine 4B concentrated or its equivalent. Warm the solution until the dye is completely dissolved. (Some of the dye will precipitate on cooling.)

4. LOFTON-MERRITT STAIN *(7)*

Prepare the following solutions:

A. 2 grams of malachite green in 100 cc. of distilled water.

B. 1 gram of basic fuchsin in 100 cc. of distilled water.

Staining

I. FOR FIBER IDENTIFICATION ("C" STAIN AND HERZBERG STAIN)

Apply three drops of the stain to each square fiber field of the slide, then place a cover glass over each in such a way as to avoid air bubbles. Allow the slide to stand for one or two minutes, then drain off the surplus stain, preferably by tilting the long edge of the slide into contact with a blotter.

Note: Take care that the unstained fibers on the slide are not touched with the fingers. The analyst usually has metallic salts of one kind or another on his hands when working, and if he touches the fibers with the fingers, these salts will be absorbed and later give rise to puzzling stain reactions.

The colors developed by these stains vary according to the raw material and the process used for reducing them to pulp. The following lists give the colors to be expected with these two stains *(5)*.

(a) "C" Stain

Note: Highly purified pulps (such as alpha) are characteristically kinky in appearance. The word "raw" refers to unbleached pulp, raw or very lightly cooked. "Unbleached" and "bleached" refer to medium and well cooked pulps.

1. Groundwood: *Vivid yellowish orange.*
2. Coniferous pulps
   - A. Sulphite
     - I. Raw: *Vivid yellow*
     - II. Medium cooked: *Light greenish yellow.*
     - III. Well cooked: *Pinkish gray.*
     - IV. Bleached: *Light purplish gray to weak red purple.*
   - B. High Alpha
     - I. Unbleached: *Very pale brown to browish gray.*
     - II. Bleached: *Moderate reddish orange to dusky red.*
   - C. Sulphate
     - I. Raw: *Weak greenish yellow.*
     - II. Medium and well cooked: *Strong yellowish brown to moderate yellowish green and dark greenish gray.*
     - III. Bleached: *Dark bluish gray to dusky purple.*
3. Deciduous pulps
   - A. Sulphite
     - I. Unbleached: *Pale yellow green.*
     - II. Bleached: *Weak purplish blue to light purplish gray.*
   - B. High Alpha
     - I. Bleached: *Moderate reddish orange to dusky red.*
   - C. Soda and Sulphate
     - I. Unbleached: *Weak blue green to dusky blue green and dark reddish gray.*
     - II. Bleached: *Dusky blue to dusky purple.*
4. Rag: *Moderate reddish orange.*
5. Manila
   - A. Raw: *Light greenish yellow.*
   - B. Unbleached and bleached: *Yellowish gray to weak blue and medium purplish gray.*
6. Jute
   - A. Unbleached: *Vivid yellowish orange*
   - B. Bleached: *Light yellow green.*
7. Straw, Bamboo, Cane, Flax Hurds and Esparto
   - A. Raw: *Light yellow to weak greenish yellow.*
   - B. Unbleached and bleached: *Light greenish gray to dark bluish gray and medium purplish gray.*
8. Japanese Fibers
   - A. Gampi and Mitsumata: *Light greenish yellow to light bluish green.*
   - B. Kozo: *Pinkish gray.*

(b) Herzberg Stain

1. Groundwood: *Brilliant yellow.*
2. Coniferous Chemical Pulps
   - A. Raw: *Light olive gray to olive gray.*
   - B. Unbleached: *Dark bluish gray to weak purplish blue.*
   - C. Bleached: *Dark purplish gray to dark reddish purple.*
3. Deciduous Chemical Pulps
   - A. Raw: *Weak olive to dusky blue green.*
   - B. Unbleached and bleached: *Dark purplish gray to deep red purplish.*
4. Rag: *Brilliant purplish pink to vivid red purple.*
5. Manila
   - A. Raw: *Moderate yellow.*
   - B. Unbleached and bleached: *Dark purplish gray to moderate purplish pink.*
6. Jute
   - A. Unbleached: *Moderate yellowish orange.*
   - B. Bleached: *Strong greenish yellow.*
7. Straw, Bamboo, Cane, Flax Hurds and Esparto
   - A. Raw: *Light yellow.*
   - B. Unbleached and bleached: *Light bluish gray to pale purplish blue and strong purplish pink.*
8. Japanese Fibers
   - A. Gampi and Mitsumata: *Light greenish yellow.*
   - B. Kozo: *Pinkish gray.*

II. FOR DETERMINING DEGREE OF COOKING (BRIGHT STAIN)

Squeeze dry between the thumb and fingers, 1.5 grams of thoroughly disintegrated pulp or paper, place in 50 cc. of a mixture consisting of equal parts of Solutions A and B, at room temperature, and stir for one minute. Strain the pulp through bolting cloth or nainsook, squeeze dry, transfer to a 500-cc. Erlenmeyer flask, disintegrate and wash by shaking with about 500 cc. of distilled water. After again straining and squeezing dry, place the sample in 50 cc. of Solution C, warmed gently, if necessary, until the dye has dissolved, and stir for two minutes; then strain, squeeze dry, and wash with 500 cc. of distilled water; after which dilute the pulp to the proper consistency for the preparation of the slides.

The colors developed by this stain are as follows: *(5)*:

20% cooked: *Light to dark blue.*
40% cooked: *Light bluish gray.*
60% cooked: *Bluish gray with purplish pink markings.*
80% cooked: *Strong purplish pink with bluish gray markings.*

100% cooked and bleached pulp: *Strong purplish pink to vivid red.*

III. For Determining the Purity of Pulp (Lofton-Merritt Stain)

Squeeze dry between the thumb and fingers, 1.5 grams of thoroughly disintegrated pulp or paper and add to a mixture of 15 cc. of Solution A, 20 cc. of Solution B, and 0.09 cc. of conc. HCl. Stir the suspension constantly at room temperature for two minutes. Strain the pulp through bolting cloth or nainsook, squeeze dry, transfer to a 500-cc. Erlenmeyer flask, disintegrate and wash by shaking with about 500 cc. of distilled water. Strain, squeeze dry, then dilute to the proper consistency for the preparation of the slides.

The colors developed by this stain are as follows *(5)*: Impure pulps stain pale purplish blue, weak reddish purple or vivid red purple. These colors become progressively lighter as the pulps are more purified until no staining at all takes place when the fibers are absolutely pure—i.e., completely delignified.

Qualitative Identification

Place the slide under the microscope, center the light properly, and examine for the different fiber constituents present in the mixture.

For the proper differentiation of the colors in fiber analysis and also so as to become accustomed to the colors developed, it is recommended that a daylight fluorescent lamp be used at all times, preferably with the light tube placed 10-12 inches from the mirror of the microscope *(9)*.

The following fiber groups can be differentiated with the Herzberg and "C" stains provided attention is also paid to morphological characteristics. (*See* TAPPI Methods T 8 sm and T 10 sm.)

(a) *"C" Stain:*

1. Groundwood
2. Coniferous unbleached
   - A. Sulphite
   - B. Alpha
   - C. Sulphate
3. Coniferous bleached
   - A. Sulphite
   - B. Alpha
   - C. Sulphate
4. Deciduous bleached
   - A. Sulphite
   - B. Alpha
   - C. Unbleached or bleached soda or sulphate
5. Rag
6. Hemp
7. Jute
8. Esparto
9. Straw
10. Japanese fibers

(b) *Herzberg Stain:*

1. Groundwood
2. Coniferous chemical pulps
3. Deciduous chemical pulps
4. Rag
5. Hemp
6. Jute
7. Esparto
8. Straw
9. Japanese fibers

In cases of doubt, slides of authentic pulps should be made and stained for comparison with the sample.

Quantitative Determinations

Bring the fiber field into focus, and with the mechanical stage, center it at a point 1 or 2 mm. from one of the corners of the cover glass. Move the stage gradually in such a way that the slide goes from left to right or vice versa, and count the fibers of each kind as they pass under the center of the cross hairs or the end of the pointer. It is best to count one kind of fiber along a line in the field, then slowly move the stage back along the same line and count all the fibers of another kind.

If a fiber passes the center of the cross hairs more than once, count it each time; but if part of the fiber goes parallel with the center for some time, count it only as one. With fiber bundles, as are often present in groundwood, count every fiber in the bundle as it passes under the center. Ignore very fine fragments, but count the larger fragments as fractions so that when two or three of the same kind of fiber fractions are observed in the same line in the field, they can be mentally added together to give a whole number.

When every fiber in a line has been counted, move the stage 5 mm. to a new line and count the fibers in the same manner. Continue this operation until the fibers in five separate lines across the slide, each 5 mm. apart, have been examined. If the slide has been properly prepared, this will give a total fiber count of between 200 and 300.

If many analyses have to be made, it is time-saving to use a tally counter in one hand for counting one kind of fiber and to count the other kind mentally. In this way, two kinds of fiber may be counted each time the field is moved across the slide.

Multiply the total number of each kind of fiber by its respective weight factor (Table I) to obtain the equivalent weights and calculate their percentages by weight of the total fiber composition.

An analysis of two square-inch fields shall be made and averaged. If the results for the two fields vary by more than 5% for any type of fiber present, then prepare and examine one or more additional fields and include the results from all the fields in the reported average.

TABLE I.—WEIGHT FACTORS

Rag	1.00
Coniferous fibers	
Unbleached and bleached sulphite and kraft (except western hemlock and southern kraft)	0.90
Western hemlock *	1.20
Southern kraft *	1.55
Alpha	0.70
Deciduous fibers	
Soda	0.50
Sulphite	0.60
Alpha	0.55
Sulphate	0.70
Groundwood	1.30
Bast and straw fibers	0.55

* These weight factors are to be used when these fibers are known to be present. A skilled microscopist can often identify them.

Note: The weight factors above have been determined *(10)* for the average types of pulps at present in commercial use and depend to some extent on the species of pulpwood commonly used for making them.

Report

The proportions of the various fibers found shall be reported in terms of percentages by weight of the total fiber composition to the nearest whole number. Fibers found present only in amounts less than one per cent shall be reported as "Traces." In cases of dispute, report also the weight factors used.

Precision

This depends solely on the skill and experience of the operator, and competent workers are expected to

be able to check the composition of a furnish within 5%. It is emphasized that to achieve this or a greater accuracy, authentic pulp mixtures should be examined from time to time for practice and to ensure that sound judgment is exercised when including or rejecting debris in the count, so that the weight factors listed remain substantially correct for the analyst's procedure.

APPENDIX

1. Morphological Characteristics

Morphological characteristics are helpful in the identification of fibers but have certain limitations as the action of the chemicals and the disintegration resulting from beating may obscure or destroy the minute cell characteristics and markings which typify related species of wood *(11)*. The characteristics of common pulp wood fibers are discussed in TAPPI Method T 8 sm.

The morphological characteristics of the other fibers are discussed in TAPPI Method T 10 sm. For differentiation of cotton, flax, hemp, manila, New Zealand flax and jute, special stains and reagents often are needed *(12, 13, 14)*.

2. Spot Stains for Groundwood

It is often desirable, in the plant or laboratory, to detect the presence or absence of groundwood, without wishing to determine the exact percentage present. No microscopic examination is necessary; the stain is simply applied to the paper and the color noted:

(a) PHLOROGLUCINOL *(15)*

Dissolve 1 gram of phloroglucinol in 50 cc. of alcohol and add 25 cc. of conc. HCl. The solution should not be mixed long before using, as it gradually loses its staining power, particularly if exposed to light. It produces a red purple color with mechanical pulp (groundwood). The depth of color is an indication of the amount of mechanical pulp present. A very light color, however, does not necessarily prove the presence of mechanical pulp, as partly cooked jute, partly cooked unbleached chemical pulp, and some other ligneous fibers are also slightly colored. In many cases jute papers show a deep coloration with this stain. Especially in the case of strong papers, indication of groundwood should be confirmed microscopically.

(b) ANILINE SULPHATE *(16)*

Dissolve 1 gram of aniline sulphate in 50 cc. of water and add a drop of conc. H_2SO_4. This produces a yellow color on papers containing a considerable percentage of mechanical pulp. It is not quite so sensitive to mechanical pulp as phloroglucinol, but is easy to obtain and prepare and costs less.

Standards containing various percentages of groundwood and other pulps may be prepared and used as a basis of comparison for these special stains.

Note: In the use of stains for application to the surface of paper, it is well to caution the user on one point. Many of the dyes used for colored papers are sensitive to acids and the color change, while apparently showing the presence of groundwood, may be caused by the action of the acid on the dyestuff. For colored papers it is well, in case of doubt, to run a blank test with a little dilute acid. Some types of safety check papers require particular care in this respect.

3. Wool

In addition to vegetable raw materials used in papermaking, wool is often found in building papers and sometimes in mulching papers. The fibers may be easily identified by the epidermal scales covering their surfaces. If undyed, they stain a pale yellow with zinc iodine stains. Blaisdell and Minor *(17)* have suggested a weight factor of 2.0 for wool (basis, cotton = 1.0).

4. Synthetic Fibers

In view of the widespread use of artificial or synthetic fibers in textiles, often these are found in rags. A comprehensive report on their characteristics has been prepared by a committee of the British Textile Institute *(18)*.

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Wall Card on Care of Rubber Belts

A useful wall card which gives complete instructions for the proper installation and care of rubber transmission belts, V-belts and conveyor belts has been prepared by The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., in the interest of rubber conservation. The card, measuring 8¾ x 11 inches, has an eyelet for convenient hanging. It may be obtained from the manufacturer by requesting Form No. 6576.

This card is the third in a series issued by Manhattan Rubber in the current national campaign to save rubber, the first two cards being devoted to "The Proper Care of Fire Hose" and "The Proper Care of Rubber Hose" and are also obtainable. They are expected to make an important contribution toward conserving this vital product.

Pink Color Paper Free on Duty

The United States Customs Court has handed down a decision in favor of the *Philadelphia Daily News*, Philadelphia, Pa., on protest of that paper in connection with rate of duty on pink colored news stock. The collector at Ogdensburg, N. Y., levied an assessment of 1/5-cent per pound and 5 per cent additional because the stock was held to be of a deeper shade than usually imported. The Court has ruled that the paper is entitled to free entry as standard newspaper stock. It was testified for the *Daily News* that the paper actually was used for its regular editions and was similar to stock used by other newsprint importers.

Maintenance and Conservation of Converting Equipment*

By Walter J. Goetsch[1]

The subject this committee has been asked to discuss here with you today is the maintenance and conservation of converting equipment in your plants and mills.

First of all let me emphasize that we want to discuss and explore this problem with you, not just try and tell you what to do about it. You, as operating men, live closer to the problem and in many respects know more about it than we do. However it is our problem also. We recognize that thoroughly and feel it is one that will require close cooperation. The primary reason for our being here is to outline to you the very radically changed condition under which we are operating, what we are trying to do in connection with this problem of maintenance and conservation of existing equipment, and to have you tell us where and how we can best help you.

We need not take time to talk about the urgent need for aircraft, ships, tanks, guns, and all the thousands of items of equipment absolutely essential to fight a modern war. These things must come first, and even if there were no governmental regulations to guide us, we, all of us, would still want to give these things precedence. That, of course, is what we are doing and what all other equipment builders are doing.

Almost without exception the firms I have been in touch with are converting their facilities to building war equipment of one kind or another, to a greater or lesser degree. This conversion is still proceeding. Some firms are practically 100% on war equipment, and I believe most of us will be between 80 to 90% on war equipment within the next few months. This has placed a staggering load not only on our shop facilities but in particular on our personnel. Most of us, and I might add that most of us are relatively small concerns with a limited staff, are building equipment so different from anything we have built in the past, that we are daily faced with entirely new engineering and management problems that cannot be set aside, and that must take precedence. Add to that increasing and often insurmountable difficulties in procurement of materials, miles of red tape, key men called into service, and you will begin to see why your letters do not always get a prompt reply, why parts are not shipped as promptly as you would like, and in general why we are not able to serve you as efficiently as we would like.

None of us know for how long a period we will be called upon to devote most of our facilities and energies to war production but I think we are fairly safe in assuming that for quite some little time we will not be able to build much, if any, new converting equipment; furthermore it will be increasingly difficult to maintain adequate parts and engineering service.

That is the general picture. Some of us are in a little better position to give service than others, but in general that is what we are up against.

We recognize that maintenance and conservation of existing equipment are important, and that we have a definite responsibility in this connection. I want to assure you that everything humanly possible will be done to help keep your machines running. We will use every ounce of ingenuity and effort at our command. We will work nights and Sundays. As some materials get too "critical" we will find ways to use less "critical" materials. What we no longer can put at your disposal in terms of materials and machine tool capacity we will try and make up by more intensive use of our brains, and the many years of experience we have built up. But don't forget that the big end of the job is in your hands. Parts will be increasingly hard to get despite anything we can do.

When plans were first set up the request was made that we prepare and present at this time suggestions and ideas that might be helpful to you in maintenance and conservation of equipment. This we are very glad to do, however in the case of converting equipment which comprises so many types and sizes of machines I do not believe that detailed and specific practical suggestions can be made intelligently unless there is a clear understanding of what particular size and type machine is under consideration. I am sure that individual builders will be very happy to answer specific questions, and make suggestions that will apply to that particular type of equipment.

When we talk about converting equipment generally, and I hardly think there will be time here to go into too much detail, the following general rules should be considered. I submit them with some hesitancy as they are really nothing but ordinary common sense rules with which all of us are familiar.

Make Frequent and Thorough Inspection of Equipment

"A stitch in time saves nine." Don't wait for breakdowns. There doesn't seem to be a great deal to suggest here, although I would like to say in quite a few plants and mills I have visited, regular and thorough inspection of equipment does not seem to extend all the way to the converting department. Since these usually operate only single shifts, at any rate are rarely on a 24-hour basis, the maintenance department in many mills is not so greatly concerned about a breakdown here. Now I realize that the paper machines and the auxiliary equipment that keep them going must come first. The point I am trying to make is that breakdowns in the converting department can be minimized by frequent and careful inspection, and it is important we do everything we can to minimize these breakdowns not only be-

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendents Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Samuel M. Langston Co., Camden, N. J.

cause of their interference with production, but particularly to prolong the serviceable life of the equipment and to reduce the time and material it takes to get this equipment back into production. Regular inspection will usually show up wear or strain before serious damage has been done, and often a simple adjustment or repair will rectify a condition that will otherwise become serious, and involve substantially greater amounts in "critical" materials.

Keep Machines Clean

It is impossible to inspect carefully a dirty machine. Clean machines always require less repair work. Here again we have a simple rule that would seem to require no further comment. It is however a rule that simple as it is, cannot be emphasized too strongly. Incidentally, there still are some plants which in the past have operated on the theory that cleaning machines, at least so far as doing any kind of a thorough job is concerned, is rather needless expense. From what I have seen in something like twenty-five years of visiting paper mills and converting plants I am thoroughly convinced that money spent in keeping equipment really clean is more than repaid in higher production, better quality work, and last but not least, lower maintenance. Today, even if you cannot prove out the dollars and cents advantages of spending a little time or money to keep machines clean, it seems to me you should justify the rule on the basis of less maintenance.

Check Lubrication

Oil and grease are less "critical" and more readily replaced than bearings and gears. Inadequate, incorrect, or faulty lubrication, is one of the most frequent causes of mechanical troubles, and what is important under present conditions it causes damage to parts that are especially high on the list of critical materials. Therefore they are especially hard to replace. Bearings are for the most part either bronze or on the other hand roller or ball bearings of some kind. All require extremely high priority ratings, some types of antifriction bearings are practically impossible to get today. Gears to a very considerable extent are made of steel forgings, in many cases alloy steel. These are so "critical" that I cannot emphasize too strongly that everything possible should be done to conserve them.

Avoid Overloads and Excessive Speed

What was safe last year with experienced operators may be hazardous for both man and machines with inexperienced crews. Under the pressure of reducing costs to a minimum and more recently under the pressure of a really tremendous demand for all types of paper and paperboard products, equipment has been continually speeded up. Much of it is running at speeds well above those for which it was designed, which means we have been trading pretty heavily on the safety factor which was built into the equipment.

Heretofore it was relatively easy to repair and if necessary replace equipment, and quite naturally the prime consideration was either reducing the overall cost, meeting demands for increased volume, or considerations of this kind. Under present conditions we have got to keep constantly in mind that it makes very little difference what the machines cost, you just cannot replace them. Now I am not advocating a blanket reduction in operating speeds, but rather a careful checkup to determine which machines are running at overloads which involve hazards of breakdowns, or higher maintenance to a point that will justify, in the light of present conditions, reduction in speed.

Educate Operating Personnel in Proper Operation of Equipment, and Adjustment of Working Parts

Rough handling can ruin a collapsible shaft promptly. Careless setting of a slitter blade will cut down its useful life greatly. I think we can all agree that carelessness and ignorance on the part of operating personnel comprise one of the major causes for maintenance. In most converting operations there has been a high labor turnover. Personnel has been called into the armed services and in many instances has been attracted into higher paid defense industries. New people have come in at a time when management and supervision have been very completely occupied with all kinds of new and urgent problems.

To what extent any intensive or systematic educational programs can be undertaken will depend upon conditions in the individual plant or mill. The point I would like to make is that the need for effort along this line was probably never greater, also I would like to suggest that in connection with any such program care and maintenance of equipment be given more attention.

It seems to me that in any educational effort your maintenance department can play an important part. I am sure your maintenance department will be able to make very valuable suggestions, as for instance setting up a list of "Do's and Don'ts" for the various machines. It seems to me also, that in some operations, it might be worthwhile to set up some sort of bonus for the operating personnel, so that their interest in proper operation and proper adjustment of working parts would be kept alive not only out of patriotic considerations, but by the stimulus of dollars and cents in the paycheck. In some instances it might be possible to set up some sort of a system of prize awards, the operator having the best maintenance record being presented with a war savings bond or something on that order.

Another idea would be to display on a bulletin board parts that have been replaced because of excessive wear, damage through carelessness, etc., together with comments as to the cause. I saw a bulletin board made up for this purpose some six weeks ago and was told by both the superintendent and several foremen that they felt it was one of the most effective things they have ever done to combat carelessness. They had on exhibition some slitting and some slotting blades, some of which had been dulled excessively and some chipped, mainly due to poor adjustment. They also showed some bearings that had failed because of poor lubrication, as well as some three or four other parts. Under each part there was a brief but complete memorandum calling attention to the critical materials involved and the machine tool time, all of which could be serving a better purpose elsewhere. There followed a brief statement as to cause of failure or damage, and the plea that if any operator had questions as to proper

adjustment of this or other parts he should take it up with the foreman. Incidentally, I was told that the master mechanic, or head of the maintenance department, who had charge of these bulletin boards, gave a brief talk on each of the "horrible examples" on display to the foremen and supervisors before installing it on the bulletin board.

Anticipate Need for Replacement Parts

Remember it takes longer to get them. Despite everything the equipment builders are doing they simply cannot be counted upon to render the prompt parts service that most have been able to build up in the past. This is a source of real concern to us and I want to assure you we are giving it intensive thought and careful attention. Here, more than anywhere else, there should be the closest cooperation between the machinery builder and the machinery user. Both of us are going to have to tax all of our knowledge and experience, ingenuity and inventiveness to the maximum.

It is not only that our own shop facilities are heavily taxed with war work, which cannot be simply pushed aside to rush through parts, but that we have a real problem getting the materials out of which to make the parts which we know you need and in many instances need very badly.

All of the materials that go into the making of parts are critical, none of them are available without priorities. A large proportion are available only on very high priorities, and even then deliveries are often so poor as to be almost impossible.

Critical materials are those such as aluminum. Brass, in fact all copper alloys are extremely difficult to procure, and as you may know under recent orders require a rating of A-1A or better. All kinds of alloy steels are extremely critical, particularly those involving chrome and molybdenum. Deliveries on steel castings are so far behind that we have on some items an almost impossible situation here.

In order to maintain parts service we are being forced to substitute for the most critical materials less critical materials wherever possible and I believe our ingenuity here is going to be taxed still further in the very near future. This is not just simply a case of specifying a less critical material for one that has become too highly critical. It often involves redesign and in all cases requires careful thought by our engineering departments.

Here again the element of time is important. Wherever possible give us as much time as you possibly can.

Anticipate your needs for repair parts but do not hoard them. This is not only illegal under present regulations but is unfair to the other fellow. Before replacing a worn part have someone who is really competent to judge determine whether it is really necessary to replace it. Inspect the worn part to see whether it can be rehabilitated or possibly used for some other purpose. Frankly I think most of us are going to find a lot of salvage in our scrap pile.

Keep in Touch with the Builders of Your Equipment

They want to help you keep it running and in most cases can supply helpful data on proper methods of operation as well as maintenance. Do not hesitate to write or phone us. Let me stress again that we as machinery builders want to help you. As busy as we are with the urgent and pressing problems of the immediate future, we all know that some day, we hope some day soon, we will once again be building equipment for you. We know that when that time comes you will have a kindly feeling for those of us who have done everything possible to help you. We also know that satisfactory performance of the machines you now have will to a very considerable extent decide what new machines you are going to buy later. We are therefore sincerely interested in helping you maintain and conserve your existing equipment not only out of patriotic considerations, but because this equipment will have to maintain and build up for us the good will on which our future orders depend.

Maintenance of Clean Paper*

By F. K. Becker[1]

Making clean paper under today's conditions is of course easier said than done. There is every prospect that the stock we have to clean may get dirtier and dirtier before we get through. In this connection it's worth remembering that the conditions we are beginning to face are already an old story across the water. In England the scarcity of papermaking materials has caused the mills to resort to extremes and makeshifts as yet undreamed of here. Yet, far from being daunted by the situation, the papermakers there are exerting the most heroic efforts to keep their papers clean and presentable as well as serviceable.

Analyzing and Charting Dirt

I wish I could tell you that all you have to do is put in adequate modern dirt removal equipment. That certainly would be the right thing to do under normal circumstances. But even though the necessary priorities are lacking that's no reason for giving up all idea of making clean paper. The English papermakers haven't and I don't believe either you or your customers are going to be satisfied with paper that isn't as clean as you can make it, either.

Keep in mind, also, that whatever you do now to dig into the dirt problem and the ways and means of dirt removal is bound to stand you in good stead later when you'll have to make paper clean enough to stack up against the keen competition of the future.

The first thing to do in any case is to study the dirt as you find it in the paper—in your own laboratory if you have the equipment and experience—or in one of the many good laboratories that work with our industry.

The different types of dirt in the sheet and their relative amounts can be charted. Knowing the kinds of dirt that affect your paper's performance or ap-

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendents Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Vice President, Bird Machine Company, South Walpole, Mass.

pearance the worst, you are then in a position to lay plans for its removal, based on the equipment you already have, or can get, or can build yourself. A good, thorough dirt survey may be half the battle—in that it immediately indicates where a good part of the dirt comes from and what steps may be taken to stop it.

Don't assume that dirtier furnish can't be helped. At least see that it's as clean as it can be. It it can be sorted and dusted, now is the time to do the best possible job of it. At any rate, check back with the supplier and make sure he's doing his part to keep unnecessary dirt out of the supply. I know of one recent case where a mill had trouble with a certain kind of dirt that occurred in their pulp supply. When they pointed this out to the pulp producer he readily traced it back through the wood room and the cause of this dirt was quickly found and the dirt eliminated.

It is still true that some, perhaps a lot, of the dirt found in the paper can be charted as "system" dirt—dirt picked up between the time the furnish reaches the mill and the time it gets on the machine.

A careful, systematic cleaning program is the only answer. Every piece of equipment that has any contact with the furnish ought to be checked periodically to see if there are any places where fibers collect or metals rust. Such places may then come in for regular washups and touchups with paint. Pipe lines and chests ought to be cleaned and painted more frequently than ever. Even floors, posts, ceilings rate closer attention. It all helps.

Removal of Dirt

Having analyzed the dirt and done what you can to keep it out at the source, the next step is to go after that which remains with the best possible dirt removal means you can summon to your assistance. There are, of course, two general methods—one, separation by weight (dirt is heavier or lighter than the stock), the other, separation by size. The first means rifflers, machines using centrifugal force, such as Centrifiners, machines using sharp differences in pressure, such as Purifiners. The second means screens.

If you're equipped with centrifugal machines see that they're not overloaded. The velocity of flow has a lot to do with dirt removal efficiency. If putting the stock through the Centrifiners at machine consistencies tends to overload, it may be wise to bypass part of the make-up water so as to use higher consistencies through the Centrifiners.

If light dirt is a particular problem, see that the skimming ring maintains the proper setting. The gap should be wide enough to eliminate plugging but narrow enough to provide a damming effect. Continuous skimming pipes are sometimes used to advantage where the volume of light dirt is greater than usual.

The operation of equipment which removes dirt on the principle of drop-in pressure through the machine is considered more or less fool proof but nevertheless, there are factors which should be checked in order to maintain high efficiency. These machines operate best at a given pressure and at a constant volume which provides a constant velocity through the unit. It is easy to keep these at the right figure if the right pump is used and sufficient capacity is provided to take care of the paper machine and simply recirculate what is left over. Whenever auxiliary units are used be sure the connections between primary and auxiliary units are kept from plugging.

If you are faced with an increase in heavy or light dirt and aren't blessed with the above means of forcible persuasion, there are still rifflers, bulky and messy though they be. You can build them yourself if need be, taking care to make them the right size and to design the baffles properly. On some kinds of dirt, lining the riffler with felt increases dirt removal efficiency. In any case, don't overlook the possibilities of rifflers as a last resort and if you are troubled with the kinds of dirt on which they can do a job.

Separation by size is unquestionably the most important dirt removal method in almost every mill inasmuch as correct employment of screens accomplishes more than any other one thing.

First, pay attention to your screen plates. The size of the slot through which the stock must pass naturally has a lot to do with the dirt removal efficiency of the screen. In general, the rule is to use the finest slot consistent with the type of fiber, the volume of stock and the capacity of the screening equipment. It is obvious that finer slots can be used on high grade bonds or ledgers than on boards or felts. It likewise follows that for a given tonnage it is necessary to use slots of sufficient width to get the stock through the size of screen available. Trying to use a finer slot in such cases means forcing the screen and that only leads to dirtier papers and more frequent break-downs.

If there is any question in your mind as to whether your Bird screens are using the right size screen slots under present conditions by all means take it up with us! Once you know the right size keep the slots uniformly at that size and square at the entering edges, by wear resistant plating, if possible, or by frequent rerolling and recutting.

If you're making a wide range of grades, it may be well to carry more than one set of plates—one with coarser slots for the heavier or harder-to-screen stock, one with finer slots for the other grades. Certainly it is worth finding out by careful survey of the grades handled, their relative importance and the particular dirt problems encountered.

Keeping the screen plates clean and open is of major importance to the success of your screening operation. See that the shower has enough pressure so that the water clearly breaks through every slot—and keep that pressure constant. It's a good idea to have a gage on the show line directly ahead of the screen.

And see that the shower pipe is kept clean inside and out. Watch the holes at the back end of the pipe, particularly. Plugged slots at this same end of the screen often results from this cause.

The dam controlling the level of stock inside the screen is set at the center line in the smaller size Bird Screens and about six inches higher in the larger screens. It's important that this level be maintained because the velocity of flow through the screen slots is then at the correct minimum. Any reduction in this level reduces the effective screening area causing an increase in the velocity of flow through the screen slot and with it an increase in the amount of dirt. Therefore, be sure that the level originally provided for is maintained.

The force that propels the stock through the screen plates is, of course, provided by the movement of the vat surrounding the cylinder. The speed and travel of this vat "shake" is determined in advance for the grades of paper to be handled. This, then, calls for two things to watch. First, make certain that wear or loosening does not alter the shake. Check and tighten up the shake assembly at regular and frequent intervals. Second, check with us if your grades of paper have been changed since the screens were installed, to make sure that the shake is correct for the changed conditions.

A variety of methods of feeding the screens have been employed—one or two boxes on top of the screen—end inlets—submerged side inlet. It's worth making sure that your screen feed is the best for the grades of stock you are now making, particularly if the stock is heavy or hard to screen. Experience has shown that the present type of submerged feed along one side of the screen may often be used to improve screening efficiency and this can readily be applied to screens that have the less up-to-date feed arrangements.

Two blocks equipped with adjusting screws are located on the upper section of the screen discharge end frame. They are put there to hold the open cylinder head snugly in its bearing on the lower half of this frame. It's smart to keep these blocks tightened up. If they become loose, the cylinder is permitted to move in unison with the vat and then you get an effect that's something like what would happen if you tried to throw something through a screen when the screen is moving as fast as the material. This one little trick of keeping these blocks in correct position to hold the cylinder firmly in its bearing means a lot to continuously efficient screen operation.

Once you've made sure that the plates are of the right cut (as fine as possible), that they're clean, that the stock is at the proper level, that you've got the right shake and the right feed—in other words that the screen is doing its dirt removal job and doing it right, the one remaining thing is to be sure the dirt gets taken out of the screen as fast as it comes in. The Bird Screen is designed so that there is no screening action at the bottom where the heavier dirt collects. A continuous flow, adjusted by a dam in a control box, assures complete removal of this dirt. Sometimes this control box adjustment is overlooked or neglected to the point where no tailings are removed or tailings are not removed fast enough to take care of any increase in dirt that may occur with changes in grade. It's a good point to watch.

The light dirt floats between the cylinder and the vat and works its way toward the discharge end. Later models of Bird Screens have compartments with adjustable gates that provide a slight overflow to remove this dirt continuously and automatically.

Finally, there is the matter of disposing of the screen rejects in such a way that the good stock they contain gets back into the system but *not the dirt.*

Again, the usefulness of analyzing the dirt is proved. The type of tailings auxiliary that works best depends on whether it's heavy dirt, light dirt or some combination of the two. For example, the diaphragm flat screen is good on light dirt but not so good on fine, heavy dirt. A dirt separation using the pressure-drop principle may be excellent on heavy dirt, not so efficient on light dirt. Then again, felt lined rifflers catch the heavy dirt and can be equipped with a dipboard to trap the floating dirt. The main thing is to use the most efficient tailings setup, even if it's a combination of methods, that you can devise. It's one more step toward keeping your paper clean.

Finally, I think I can speak for the builders not only of paper cleaning equipment but all other paper mill equipment when I assure you that we earnestly desire to continue to provide every possible assistance to you as well as to the war production program in which most of us are immersed up to our necks. We'll do everything we can in the way of engineering and service in order that you, in turn, may succeed in making your full contribution to the country's production effort. Working together I am confident that we shall be able to overcome or minimize the temporary obstacles to the quantity production of paper that's as good and as clean as we can make it. In that way, we shall be meeting our mutual responsibilities and opportunities for service to our country.

WPB Issues Wood Pulp Order

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 6, 1942—An interpretation of General Preference Order M-93, which directs the distribution of wood pulp to consumers under an allocation system, has been issued by the Director of Industry Operations to clarify certain points with respect to administration of the order.

The interpretation, No. 2, is designed to make plain the following:

That wood pulp, the distribution of which is regulated by M-93, does not include paper or paper board side runs.

That monthly reports on consumption, inventory and estimated receipts, which must be filed with WPB on Form PD-291, should include side run paper or paper board when retained or disposed of for use in the manufacture of papers, paper board or paper products.

That a delivery of wood pulp is considered to have taken place when the pulp has been placed in the hands of a carrier or any other form of transit, regardless of the time when the person to whom it is to be delivered receives it.

That delivery, under monthly allocations, may be made within three days before the first of the month specified or three days after the end of that month.

That filing of orders for wood pulp with producers on Form PD-290 means that the form should be placed in the mails or other means of delivery in time to reach the producer not later than the 5th day of each month.

That filing shipping schedules with WPB on Form PD-292, which must be received by WPB on or before the 15th day of each month, means placing this form, together with copies of Form PD-290, in the mails in time to reach WPB not later than the 15th of each month.

That whenever the Director of Industry Operations approves a delivery of pulp, the approval automatically includes authority to make minor adjustments in the quantities of pulp to be delivered so that full carloads may be shipped. In the past, it has been found that some shipments have fallen slightly short of a full carload, and it is necessary to adjust this situation so that efficient use can be made of available transportation facilities.

Hydrogen Ion Concentration of Paper Extracts*

Revision of TAPPI Tentative Standard T 435 m-34

Reference

In this method the pH value of a paper refers to its acidity or alkalinity in terms of hydrogen ion concentration of the unfiltered aqueous extract of the cut or ground paper.

Both hot- and cold-extraction procedures are included. The hot extraction is customarily used in the paper industry for predicting the stability of papers. The cold-extraction method, however, also is suitable for this purpose and possesses the advantage of being simpler and requiring less working time. It is believed that the cold-extraction method more nearly approaches the normal pH of the paper at the time of the determination. Launer has shown that in the acid region the pH values for cold extraction are higher than those of hot extraction because of the hydrolysis of aluminum sulphate at the higher temperature. For a discussion of such points as cold *vs.* hot extraction, purity of the water, time of extraction, etc., *see* references.

Apparatus

The special apparatus required for this test is a circuit including a glass electrode and a saturated KCl-calomel half-cell capable of precision to within 0.1 pH. The complete apparatus is commercially available. The apparatus used shall be standardized frequently against 0.05 *M* potassium acid phthalate solution, which has a pH of 4.0 over the entire range of room temperature.

If a disintegrator is used, the Koerner type or its equivalent (described in the literature) is recommended. Alternatively, a sharp rasp or grater may be used. Care is necessary neither to contaminate nor unduly heat the paper during disintegration.

Reagents

(*a*) *0.05 M Potassium Acid Phthalate Solution,* for standardizing the electrode. Dissolve 10.2 grams of $KHC_8H_4O_4$, sufficiently pure for acidimetric purposes, in water and dilute to 1 liter. This solution generally will remain usable for several months at pH 4.0.

(*b*) *Distilled Water.* For making the extraction, water containing ordinary amounts of CO_2, but not more than corresponds to a pH of 5.9, may be used to test all papers, including those in the neutral range between pH 6.0 to 7.0. A sample of the water must be tested for alkaline impurities, however, by boiling for a few minutes, cooling, and then measuring its pH. If this is found to be higher than 7.3 the water must be distilled from a solution containing approximately 1 gram of $KMnO_4$ and 4 grams of NaOH per liter. A double still-head is usually necessary.

* The revision of this method has been approved by the Paper Testing Committee. Criticisms of this method are earnestly requested and should be sent promptly to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York, N. Y.

Test Specimen

The test specimen shall be cut from the sample in such a way as to be thoroughly representative of it. Ordinary papers such as printing and writing papers may be tested in the form of cuttings, roughly 1 sq. cm. in area. If, however, the paper is more than 0.012 inch thick, or very dense, it shall be reduced to a fluffy form by a disintegrator. The prepared material shall be thoroughly mixed.

NOTE: The use of a disintegrator should be avoided except when necessary, because of possible contamination. When using a Koerner-type disintegrator, if the size of the sample will permit, it is well to run a considerable amount of the paper through the disintegrator and discard it before preparing the sample for test.

Procedure

1. COLD EXTRACTION

Weigh 1.0 gram of the air-dry cut or ground paper into a 100 cc. beaker. Add about 20 cc. of distilled water and macerate with a flattened stirring rod until the specimen is uniformly wet. Then add 50 cc. more of the water, stir well, cover with a watch glass and let stand for 1 hour. At the end of the extraction period stir once more and measure the pH of the unfiltered mixture with the glass electrode. Carry out the entire procedure at 20 to 30 deg. C. (68 to 86 deg. F.). If the glass electrode had just previously been used for measurements in the alkaline region, and if the paper to be tested is in the neutral region, immerse the electrode in 0.05 *M* potassium acid phthalate for 1 minute and rinse thoroughly several times with distilled water before use.

2. HOT EXTRACTION

Weigh 1.0 gram of the air-dry cut or ground paper into a 125-cc. Erlenmeyer flask. Add about 20 cc.

TABLE I.—CORRESPONDING pH, H-ION AND OH-ION VALUES

pH	H-ion concentration	pH	OH-ion concentration
4.0	1000×10^{-7}	7.0	1×10^{-7}
4.1	790	7.1	1.3
4.2	630	7.2	1.6
4.3	500	7.3	2
4.4	400	7.4	2.5
4.5	320	7.5	3
4.6	250	7.6	4
4.7	200	7.7	5
4.8	160	7.8	6
4.9	130	7.9	8
5.0	100	8.0	10
5.1	79	8.1	13
5.2	63	8.2	16
5.3	50	8.3	20
5.4	40	8.4	25
5.5	32	8.5	32
5.6	25	8.6	40
5.7	20	8.7	50
5.8	16	8.8	63
5.9	13	8.9	79
6.0	10	9.0	100
6.1	8	9.1	130
6.2	6	9.2	160
6.3	5	9.3	200
6.4	4	9.4	250
6.5	3	9.5	320
6.6	2.5	9.6	400
6.7	2	9.7	500
6.8	1.6	9.8	630
6.9	1.3	9.9	790
7.0	1	10.0	1000

of distilled water and macerate with a flattened stirring rod until the specimen is uniformly wet. Then add 50 cc. more of the water, stir, and affix to the flask a stopper containing a glass tube about 9 mm. in diameter and 75 cm. in length, which serves as a condenser. A soil-digestion flask which has a ground-glass stopper and condensing tube in one piece, or a rubber stopper covered with clean metal foil may be used. Place the flask in a steam bath which will maintain the contents of the flask at 95 to 100 deg. C. without boiling the water. Heat at this temperature for 1 hour with occasional shaking, then cool to 20 to 30 deg. C. (68 to 86 deg. F.), and measure the pH of the unfiltered mixture with the glass electrode. If the glass electrode had just previously been used for measurements in the alkaline region, and if the paper to be tested is in the neutral region, immerse the electrode in 0.05 *M* potassium acid phthalate for 1 minute and rinse thoroughly several times with distilled water before use.

Report

All tests shall be made in duplicate, the results of which should agree within 0.1 pH. The average shall be expressed to the nearest 0.1 pH. The report shall state whether cold extraction or hot extraction was used.

Additional Information

In Table 1 pH values are expressed in terms of hydrogen- and hydroxyl-ion concentrations. This table emphasizes the importance of small differences in pH at the extreme ends of the acid and alkali range usual to papers, as contrasted with the relative unimportance of numerically equal differences in pH in the neutral region.

References

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Browning, B. L., and Ulm, R. W. K., *Paper Trade J.* 102:89 (Feb. 20, 1936).

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Launer, H. F., "Retention of Aluminum Ion and Hydrogen Ion in Papers", *J. Research Natl. Bur. Standards* 23:663 (1939); *Research Paper* RP1262.

Wehmer, P. F., "Hydrogen Ion Concentrations and Pentosans", *Tech. Assoc. Papers* 23:56, 446 (June, 1940).

Wood Pulp Amendment Now Effective

WASHINGTON, D. C., July 6, 1942—The procedure for determining maximum prices for certain special chemical grades of wood pulp is expedited as the result of Amendment No. 2 to Maximum Price Regulation No. 114 (Wood Pulp) issued today by Price Administrator Leon Henderson. The amendment became effective July 4, 1942.

Today's action directly affects the sales of producers of (1) sulphite wood pulp of special chemical, high alpha or glassing grades, (2) sulphate wood pulp of special chemical or condenser grades, and (3) wood pulps produced in whole or in part from rags, paper stock, or any fibre material other than wood.

Maximum prices for these grades are determined by the provisions of Section 1347.232 (d) of the regulation. Until today producers of these grades were required to submit their proposed prices to OPA for an order of approval, but the amendment eliminates the necessity for an order if OPA does not object to the proposed prices.

The proposed prices submitted to OPA automatically go into effect unless the administrator issues an order within 21 days after the producer has filed his proposed prices. Sales of these grades may be made during the 21 day period at the prices proposed, but producers must agree with purchasers to adjust these prices to conform with any order that may be issued by the administrator before the expiration of the 21 day period.

Producers who have filed prices for approval before the issuance of the amendment are advised to complete their sales at the prices submitted to OPA subject to an order of disapproval issued within 21 days from the effective date of this amendment.

The procedure, as set forth in the amendment, requires producers to file with OPA a sworn statement which sets forth the following data:

(1) Grade and grade name of wood pulps proposed to be sold:

(2) Special characteristics which bring the grade or grades involved within the provisions of this paragraph (d):

(3) Proposed sales prices per air dry ton, and terms of sale (i.e. delivered, delivered with freight allowed, f.o.b. mill, ex dock Atlantic seaboard, or other):

(4) Names and addresses of customers to whom such wood pulps have been sold in the fourth quarter of the year, 1941, and thereafter:

(5) Prices per air dry ton at which these wood pulps have been sold to all such customers in the fourth quarter of 1941, and thereafter, and the terms of all such sales:

(6) An itemized statement of the costs of production of such wood pulps per air dry ton.

Care and Maintenance of Belting

With the subject never as important as it is today, because of the restrictions on the use of rubber created by the war, the B. F. Goodrich Company has just issued one of the most timely volumes it has ever produced for industrial executives, titled "Care and Maintenance of Conveyor and Elevator Belting." Copies will be sent free upon request.

Consisting of 24 pages, every paragraph of the catalog section listed as No. 2800 is packed with vitally important instructions for the case and maintenance of belting, as well as chapters containing a wide range of belt data, valuable when considering installation or repair problems.

The volume opens with a chapter on "Why The Care of Belts is Worth While," pointing out the economies made possible by current care and maintenance. "Belting Wear at Loading Points," one of the fundamental parts of the subject is exhaustively discussed, as well as the role skirt boards, trapped lumps and speed regulation play in the problem of belt wear.

"Making Conveyor Belts Run Straight" is the subject of a chapter to which two pages are devoted. Other chapters are titled "Belt Wear due to Defective Idlers," "Excessive Tension," "Hazards to Belts on Portable Conveyors," "Light, Heat, Moisture, Etc." "How to Install Conveyor Belts," "Vulcanized Splices and Repairs." "Specifying New Conveyor Belts," "Condensed Conveyor Belt Data," and "Elevator Belts."

IMPORTS OF PAPER

NEW YORK IMPORTS

WEEK ENDING JULY 4, 1942

SUMMARY

Newsprint ..... 4,577 rolls

NEWSPRINT

——, ——, ——, 247 rolls.
——, ——, ——, 511 rolls.
——, ——, ——, 532 rolls.
——, ——, ——, 2201 rolls.
——, ——, ——, 664 rolls.
——, ——, ——, 422 rolls.

WOODPULP

——, ——, ——, 728 bls. sulphite.
——, ——, ——, 1302 bls. sulphite.
——, ——, ——, 1187 bls. sulphite.
——, ——, ——, 3287 bls. dry ground wood pulp.

The Labor Problem in Cutting Sheets

Increased sheet tonnage of many paper mills and other finishers of paper is an already proven problem that fits into the war production program when a much greater output is not only expected in the essential products and materials, but is insisted upon despite a shortage of labor.

A quick and most efficient method of accelerating sheet production is by using the overlapping delivery on rotary sheet cutters as a means to the desired end. This type of sheet delivery not only has the efficiency of the more common or tandem type, but tonnage from individual cutter units can be greatly increased (over doubled in many cases) with the regular one-machine crew.

The fact that the sheets or cuts suddenly but slightly increase in speed and in turn are as quickly and greatly reduced into a continuous flow of overlapped, slow-running cuts permits high speed cutting without injury to the paper. This delivery is most efficient because the sheeted stock, cut from single or from a multiple of rolls, is under more dependable control, either at moderate or high speed, from the instant the sheet is carried from the bedknife of the cutter to the layboy. Speeds of 500 feet per minute of the web of paper through the cutter are commonplace, using the overlapping delivery.

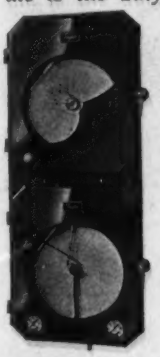
With the scarcity of labor and the imperative need for essential materials, any improved methods that can still be used to advantage without sacrifice to the tremendous war manufacturing program already in effect is a find. For paper mills and finishers of paper it means that present rotary cutters can be equipped to double their output in many cases. A high-speed sheet delivery will help solve present cutting problems as it can be attached to any type of paper mill cutter and will make the ordinary unit a more flexible setup; and can produce a decided increase in tonnage without any more help than now employed, at an extra initial cost that is negligible when compared to the increase in finished paper tonnage per cutting unit. Furthermore, the metals and other materials involved in the construction of the overlapping delivery weigh only about 20% of those in the cutter and layboy to which it is attached; and, in general, these metals do not include the extremely critical elements. The MAMCO Overlapping Delivery system is a proven attachment (of over 20 years) to accomplish these results.

To make the system still more efficient, the operation of an automatic ream and quire counter and marker, in conjunction with a high-speed sheeting unit, leaves only the bundling or boxing of the flat stock to interrupt the cutting of rolls into sheets and the finishing and shipment of the paper product.

MAMCO attachments are products of the Maxson Automatic Machinery Company, Westerly, R. I.

New Fulscope Time Schedule Controller

Maintaining exact temperature, pressure, flow or liquid level according to a predetermined time schedule is the duty of the new Taylor Fulscope Time Schedule Controller. After the ideal processing schedule has once become determined, it is possible, with this new Taylor instrument, automatically and precisely to repeat the process as many times as desirable.



The cam and the chart are individually mounted and conveniently located for instant visual comparison on this latest development of the Taylor Instrument Companies, Rochester, N. Y. So completely new, and incorporated with the famous Fulscope Controller, the Taylor Fulscope Time Schedule Controller presents many improved features, among them: friction drive cam assembly which permits rotation of the cam without loosening any locking means; improved means of resetting one cam without disturbing the other in an instrument with two complete control mechanisms; each cam capable of operating from one to four air valves, micro-switches or both for the actuation of any external mechanism such as a valve, bell or light, and do this automatically in any desired relation of one to the other; and the automatic return of the cam to the starting position.

An optional feature of this new Time Schedule Controller is the Interrupter Timer which allows extreme flexibility to both the rise and the holding periods of the process under control. This timing feature allows the use of a very fast cam clock for a rapid rising period, but reduces the speed of the clock to increase the length of the holding period. The rising period, the holding period or both may be increased as much as 6½ times normal period with this new Taylor Interrupter Timer. It is built right in the Time Schedule Controller, eliminating the need for a separate timing controller.

The new Taylor Time Schedule Controller is available in all control forms, including automatic reset and Pre-Act. By the addition of precalibrated assemblies it can easily be converted to fit any process requirements which might arise in the future. Detailed information may be obtained by writing for Bulletin No. 99111.

Trade Association Directory

The U. S. Department of Commerce has just published a 320-page volume entitled "Trade and Professional Associations of the United States." This directory has been issued to assist the coordination into the war program of the nation's 3,000 larger organizations, having a membership over 40 persons.

The publication may be purchased from the Government Printing Office, Washington, D. C., at 70 cents a copy.

New York Paper and Pulp Market Review

Production and Demand For Some Grades of Paper Declines — WPB Issues Interpretation of General Preference Order M-93 — Roofing Rags Less Active — Waste Paper Market Continues Slow.

Office of the PAPER TRADE JOURNAL,
Wednesday, July 8, 1942.

Wholesale business in the paper market continues to reflect the general downward trend in civilian demand. Heavy government consumption and purchasing on all accounts maintains a moderate volume. The mill production ratio has declined to the lowest operating level in several years and is currently at approximately the figure of June 26, 1937.

The index of general business activity for the week ended June 27 rose to 130.2%, from 130.0% for the preceding week, compared with 132.1% for the corresponding week last year. Paper board output was fractionally higher.

Paper production for the week ended June 27 was estimated at 84.9%, compared with 101.5% for 1941, with 94.5% for 1940, with 81.2% for 1939, and with 68.8% for the corresponding week for 1938.

Paper board production for the week ended June 27 was 72.0%, compared with 90.0% for 1941, with 80.0% for 1940, with 70.0% for 1939, and with 62.0% for the corresponding week for 1938.

Kraft and sulphite wrapping papers are reported in good demand, as are some other major sulphite items. Orders for book papers, largely used in normal times for advertising and catalogues, are declining. While backlog orders are still reported moderate, the entire paper supply situation is easy, with some quarters expecting further declines during the summer. Current reports received from many manufacturers' representatives, jobbers, and general paper merchants reflect concern and uncertainty. The war effort is generally viewed as steadily curtailing supply and demand for practically all consumer goods. Some opinions are expressed that the government appears to be neglecting the home front to speed up the production of military goods and discourage consumer buying.

Wood Pulp

The War Production Board issued July 1, 1942, Interpretation 2 of General Preference Order M-93. This does not change the general order but more clearly explains it. The WPB states that, "wood pulp" does not include paper or paper board side runs. "Other fibrous materials" are defined and "include side run paper and paper board, when retained or disposed of for use in the manufacture of paper, paper board or paper products."

Rags

Less activity is currently reported in roofing rags. Trading in other old rags is slow. Mixed rag prices are less firm at this date. Demand for cotton cutting is fair.

Old Rope and Bagging

Demand continues good in No. 1 Manila rope, with no important changes reported at this date.

Trading in scrap bagging has been moderate to good this week, with ceiling prices maintained.

Old Waste Paper

Mill buying of old waste paper continues at a slower pace, with nothing apparently ahead to revive declining trading in the near future. Prices in general are soft.

Twine

Demand for most grades of twine was reported only fair this week. Scarcity continues in the supply of imported fibers, due to the war in the South Pacific, and lack of normal shipping facilities.

Robert F. Huntley Resigns

FULTON, N. Y., July 6, 1942—Announcement is made here of the resignation of Robert F. Huntley as chief chemist at the plant of the Oswego Falls Corporation. He plans to leave here next month for Cleveland, Ohio, where he has accepted an executive position with a chemical concern. During his stay here he has been prominent in fraternal circles.

It was also announced that Culver M. Lussier, controller of the Oswego Falls Corporation and Sealright Corporation, was elected president of the Syracuse branch of the Controllers Institute of America at the annual meeting at the Onondaga Golf and Country Club here recently.

Sand Trappers

The July 3 Bulletin of the Salesmen's Association of the Paper Industry states in part that, on June 23, our Association held a golf outing at the Innis Arden Golf Club, Old Greenwich, Conn. Two boys were stationed on the sixteenth green which is surrounded by traps. Every player who got into a trap was penalized 25c. Out of 47 players who tried to land on the green of this 180 yard hole, 24 got into the traps and paid the penalty. We are, therefore, enclosing our check for $6.00 as a little contribution to the U.S.O. fund.

This record does not speak very well for the quality of golf that was played at this outing, but did result in getting the U.S.O. a larger contribution than would have been the case had the players been experts.

The official receipt of U.S.O. was addressed to "24 Sand Trappers of Salesmen's Association of the Paper Industry."

England Salvages Straw for Paper

WASHINGTON, D. C., July 8, 1942—Army salvage depots in England are collecting the straw in army pallets for paper making, according to unofficial reports reaching government departments here. When fresh straw is issued, the used straw is dried, packed in bales, and sent to paper mills.

The reports state that the depots also collect jute from tattered sand bags, as well as large quantities of army paper, sending both to paper mills. Formerly such waste products were burned, it is pointed out.

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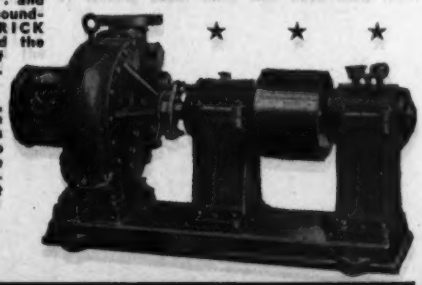

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DIVISION OF INTERCHEMICAL CORPORATION
NEWARK, NEW JERSEY
SALES OFFICES IN PRINCIPAL CITIES

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, July 8, 1942.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER — Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2.25 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 16½ cents per pound; 80-100 mesh, at 17 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 14 cents per pound, c.i.f. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported fair at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market strong. Government demand is reported heavy during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with lower prices on some grades. "G" gum rosin is currently quoted at $3.10 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.05 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.41 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand good for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake is nominal

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderate for the current week. The commercial grades are currently quoted at from $1.15 to $1.25; iron free at from $1.75 to $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Carload Quantities * Delivered Prices			
Extra Quality	$6.00	@	$7.00
Superstandard	5.25	"	6.25
* No. 1 Wrapping	5.00	"	—
* Standard Bag	4.37½	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
5gl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$40.25 @	$47.25	$41.40 @ $48.50
100% Rag	32.20 "	37.75	33.35 " 39.25
85% Rag	.... "	....	32.20 " 37.75
75% Rag	24.75 "	29.00	25.90 " 30.50
65% Rag	.... "	....	22.80 " 27.75
50% Rag	18.70 "	22.75	19.90 " 24.25
25% Rag	16.40 "	20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers
No. 1	$10.55 @	$12.75	$11.70 @ $14.25
No. 2	9.65 "	11.75	10.80 " 13.25
No. 3	9.20 "	11.25	10.35 " 12.50
No. 4	8.90 "	10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00		
Unbl. Softwood Sulphite	64.00	@	66.00
Bl. Hardwood Sulphite	73.50		
Unbl. Hardwood Sulphite	63.50		
Bl. Mitscherlich	81.00		
Unbl. Mitscherlich	72.00		
N. Bleached Sulphate	86.00		
S. Bleached Sulphate	79.00		
N. Semi-Bleached Sulphate	62.00		
S. Semi-Bleached Sulphate	75.00		
N. Unbl. Sulphate	73.00		
S. Unbl. Sulphate	63.50		
Bl. Soda	66.00		
Unbl. Soda	62.00		
Groundwood	46.00		

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

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POTDEVIN

SCREENS
of Perforated Metal

The Harrington & King PERFORATING CO.
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Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
*Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All prices nominal

New Rags			
New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25
Old Rags			
No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
Sisal Strings	3.25	"	3.75
Mixed Strings	1.10	"	1.20

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Mixed Books	1.07½	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.35	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	1.75	"	—
Old Corrugated Containers	1.00	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¾	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¼	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¼	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.50	@	5.00
Sisal Rope	4.50	"	5.00
Mixed Rope	1.25	"	1.40
Transmission Rope—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	5.50
Jute Carpet Threads	3.25	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.50	"	—
Scrap Sisal	4.75	"	5.00
Scrap Sisal for Shredding	5.50	"	5.75
Wool Tares—			
Foreign	(nominal)		
Domestic	5.00	"	5.75
Aust. Wool Pouches	5.25	"	5.50
New Burlap Cuttings	5.50	"	5.75
Heavy Baling Bagging	4.75	"	5.00

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.50	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—
Paper Mill Bagging	3.00	"	3.25
No. 2 Bagging	1.35	"	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.08	"	.08¼
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.08¾	"	.09¼
Underwear Cutters, Bleached	.08	"	.08¼
Underwear Cutters, Unbleached	6.50	"	6.75
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03¾	"	.04
Red Cotton Cuttings	.03¾	"	.04
Soft Unbleached	.08¼	"	.08½
Blue Cheviots	.04¼	"	.05
Fancy	.02¾	"	—
Washable	.01¾	"	—
Cottons According to Grades—			
Blue Overalls	—	"	.05½
New Black, Soft	.03¾	"	.04
Khaki Cuttings	.04¼	"	.04½
O. D. Khaki	.04½	"	.04¾
Corduroy	.02	"	.02¼
New Canvas	.06	"	.06½
B. V. D. Cuttings	.07¾	"	.08

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
*Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

No. 1 Heavy Books & Magazines	1.57	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 2 Roofing Rags	1.45	"	—